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CROSS-SECTIONS OF LARGE-ANGLE HADRON PRODUCTION IN PROTON– AND PION–NUCLEUS INTERACTIONS IV: COPPER NUCLEI AND BEAM MOMENTA FROM $\pm 3~{\rm GeV}/c$ TO $\pm 15~{\rm GeV}/c$

Abstract

We report on double-differential inclusive cross-sections of the production of secondary protons, charged pions, and deuterons, in the interactions with a 5% $\lambda_{\rm abs}$ thick stationary copper target, of proton and pion beams with momentum from $\pm 3~{\rm GeV/}c$ to $\pm 15~{\rm GeV/}c$. Results are given for secondary particles with production angles $20^{\circ} < \theta < 125^{\circ}$.

The HARP-CDP group

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1 Introduction

The HARP experiment arose from the realization that the inclusive differential cross-sections of hadron production in the interactions of few GeV/c protons with nuclei were known only within a factor of two to three, while more precise cross-sections are in demand for several reasons. Pion production data on a variety of nuclei are required for (i) the understanding of the underlying physics and the modelling of Monte Carlo generators of hadron–nucleus collisions, (ii) the optimization of the design parameters of the proton driver of a neutrino factory, (iii) flux predictions for conventional neutrino beams, and (iv) the calculation of the atmospheric neutrino flux.

Consequently, the HARP detector was designed to carry out a programme of systematic and precise (i.e., at the few per cent level) measurements of hadron production by protons and pions with momenta from 1.5 to 15 GeV/c.

The detector combined a forward spectrometer with a large-angle spectrometer. The latter comprised a cylindrical Time Projection Chamber (TPC) around the target and an array of Resistive Plate Chambers (RPCs) that surrounded the TPC. The purpose of the TPC was track reconstruction and particle identification by $\mathrm{d}E/\mathrm{d}x$. The purpose of the RPCs was to complement the particle identification by time of flight.

The HARP experiment was performed at the CERN Proton Synchrotron in 2001 and 2002 with a set of stationary targets ranging from hydrogen to lead.

Here, we report on the large-angle production (polar angle θ in the range $20^{\circ} < \theta < 125^{\circ}$) of secondary protons and charged pions, and of deuterons, in the interactions with a 5% $\lambda_{\rm abs}$ Cu target of protons and pions with beam momenta of $\pm 3.0, \pm 5.0, \pm 8.0, \pm 12.0$, and ± 15.0 GeV/c.

This is the fourth of a series of cross-section papers with results from the HARP experiment. In the first paper, Ref. [1], we described the detector characteristics and our analysis algorithms, on the example of $+8.9~{\rm GeV}/c$ and $-8.0~{\rm GeV}/c$ beams impinging on a $5\%~\lambda_{\rm abs}$ Be target. The second paper [2] presented results for all beam momenta from this Be target, and the third paper [3] results from the interactions with a $5\%~\lambda_{\rm abs}$ Ta target.

Our work involves only the HARP large-angle spectrometer, the characteristics of which are described in detail in Refs. [4] and [5].

2 THE T9 PROTON AND PION BEAMS, AND THE TARGET

The protons and pions were delivered by the T9 beam line in the East Hall of CERN's Proton Synchrotron. This beam line supports beam momenta between 1.5 and 15 GeV/c, with a momentum bite $\Delta p/p \sim 1\%$.

Beam particle identification was provided for by two threshold Cherenkov counters, BCA and BCB, filled with nitrogen, and by time of flight over a flight path of 24.3 m. Table 1 lists the beam instrumentation that was used at different beam momenta for p/π^+ and for π/e separation.

The pion beam had a contamination by muons from pion decays. It also had a contamination by electrons from converted photons from π^0 decays. Only for the beam momenta of 3 and 5 GeV/c were electrons identified by a beam Cherenkov counter and rejected.

The fractions of muon and electron contaminations of the pion beam were experimentally determined [6, 7] and are listed in Table 2 for all beam momenta. For the determination of interaction cross-sections of pions, the muon and electron contaminations must be subtracted from the incoming flux of pion-like particles (except electrons at the beam momenta of 3 and 5 GeV/c).

There is also a kaon contamination of a few per cent in the proton and pion beams. Kaons are suppressed by the beam instrumentation, except at 5 GeV/c beam momentum where they

Table 1: Beam instrumentation for p/π^+ and π/e separation

Beam momentum [GeV/c]	p/π^+ separation	π /e separation
±3.0	TOF	BCB (1.05 bar)
±5.0	TOF	BCA (0.60 bar)
±8.0	BCA (1.25 bar)	
	BCB (1.50 bar)	
± 12.0 and ± 15.0	BCA (3.50 bar)	
	BCB (3.50 bar)	

Table 2: Contaminations of the pion beams by muons and electrons

Beam momentum [GeV/c]	Muon fraction	Electron fraction
±3.0	$(4.1 \pm 0.4)\%$	rejected
± 5.0	$(5.1 \pm 0.4)\%$	rejected
±8.0	$(1.9 \pm 0.5)\%$	$(1.2 \pm 0.5)\%$
± 12	$(0.6 \pm 0.6)\%$	$(0.5 \pm 0.5)\%$
±15	$(0.0 \pm 0.5)\%$	$(0.0 \pm 0.5)\%$

are indistinguishable from pions. Because the kaon interaction cross-sections are close to the pion interaction cross-sections, this kaon contamination is ignored.

The beam trajectory was determined by a set of three multiwire proportional chambers (MWPCs), located upstream of the target, several metres apart. The transverse error of the impact point on the target was 0.5 mm from the resolution of the MWPCs, plus a contribution from multiple scattering of the beam particles in various materials in the beam line. Excluding the target itself, the latter contribution is 0.2 mm for a 8 GeV/c beam particle.

We select 'good' beam particles by requiring the unambiguous reconstruction of the particle trajectory with good χ^2 . In addition we require that the particle type is unambiguously identified. We select 'good' accelerator spills by requiring a minimal beam intensity and a 'smooth' variation of beam intensity across the 400 ms long spill¹⁾.

The target was a disc made of high-purity (99.99%) copper, with a density of 8.91 g/cm³, a radius of 15.1 mm, and a thickness of 7.52 ± 0.05 mm (5% $\lambda_{\rm abs}$).

The finite thickness of the target leads to a small attenuation of the number of incident beam particles. The attenuation factor is $f_{\rm att}=0.975$.

The size of the beam spot at the position of the target was several millimetres in diameter, determined by the setting of the beam optics and by multiple scattering. The nominal beam position²⁾ was at $x_{\text{beam}} = y_{\text{beam}} = 0$, however, excursions by several millimetres could occur³⁾.

¹⁾A smooth variation of beam intensity eases corrections for dynamic TPC track distortions.

 $^{^{2)}}$ A right-handed Cartesian and/or spherical polar coordinate system is employed; the z axis coincides with the beam line, with +z pointing downstream; the coordinate origin is at the upstream end of the copper target, 500 mm downstream of the TPC's pad plane; looking downstream, the +x coordinate points to the left and the +y coordinate points up; the polar angle θ is the angle with respect to the +z axis.

³⁾The only relevant issue is that the trajectory of each individual beam particle is known, whether shifted or not, and therefore the amount of matter to be traversed by the secondary hadrons.

A loose fiducial cut $\sqrt{x_{\mathrm{beam}}^2 + y_{\mathrm{beam}}^2} < 12$ mm ensured full beam acceptance. The muon and electron contaminations of the pion beam, stated above, refer to this acceptance cut.

3 PERFORMANCE OF THE HARP LARGE-ANGLE DETECTORS

Our calibration work on the HARP TPC and RPCs is described in detail in Refs. [4] and [5], and in references cited therein. In particular, we recall that static and dynamic TPC track distortions up to 10 mm have been corrected to better than 300 μ m. Therefore, TPC track distortions do not affect the precision of our cross-section measurements.

The resolution $\sigma(1/p_T)$ is typically 0.2 (GeV/c)⁻¹ and worsens towards small relative particle velocity β and small polar angle θ .

The absolute momentum scale is determined to be correct to better than 2%, both for positively and negatively charged particles.

The polar angle θ is measured in the TPC with a resolution of ~ 9 mrad, for a representative angle of $\theta=60^\circ$. To this a multiple scattering error has to be added which is on the average ~ 7 mrad for a proton with $p_{\rm T}=500$ MeV/c in the TPC gas and $\theta=60^\circ$, and ~ 4 mrad for a pion with the same characteristics. The polar-angle scale is correct to better than 2 mrad.

The TPC measures dE/dx with a resolution of 16% for a track length of 300 mm.

The intrinsic efficiency of the RPCs that surround the TPC is better than 98%.

The intrinsic time resolution of the RPCs is 127 ps and the system time-of-flight resolution (that includes the jitter of the arrival time of the beam particle at the target) is 175 ps.

To separate measured particles into species, we assign on the basis of dE/dx and β to each particle a probability of being a proton, a pion (muon), or an electron, respectively. The probabilities add up to unity, so that the number of particles is conserved. These probabilities are used for weighting when entering tracks into plots or tables.

4 MONTE CARLO SIMULATION

We used the Geant4 tool kit [8] for the simulation of the HARP large-angle spectrometer.

Geant4's QGSP_BIC physics list provided us with reasonably realistic spectra of secondaries from incoming beam protons with momentum less than 12 GeV/c. For the secondaries from beam protons at 12 and 15 GeV/c momentum, and from beam pions at all momenta, we found the standard physics lists of Geant4 unsuitable [9].

To overcome this problem, we built our own HARP_CDP physics list for the production of secondaries from incoming beam pions. It starts from Geant4's standard QBBC physics list, but the Quark—Gluon String Model is replaced by the FRITIOF string fragmentation model for kinetic energy E>6 GeV; for E<6 GeV, the Bertini Cascade is used for pions, and the Binary Cascade for protons; elastic and quasi-elastic scattering is disabled. Examples of the good performance of the HARP_CDP physics list are given in Ref. [9].

5 SYSTEMATIC ERRORS

The systematic uncertainty of our inclusive cross-sections is at the few-per-cent level, from errors in the normalization, in the momentum measurement, in particle identification, and in the corrections applied to the data.

The systematic error of the absolute flux normalization is taken as 2%. This error arises from uncertainties in the target thickness, in the contribution of large-angle scattering of beam particles, in the attenuation of beam particles in the target, and in the subtraction of the muon

and electron contaminations of the beam. Another contribution comes from the removal of events with an abnormally large number of TPC hits⁴).

The systematic error of the track finding efficiency is taken as 1% which reflects differences between results from different persons who conducted eyeball scans. We also take the statistical errors of the parameters of a fit to scan results as systematic error into account [1]. The systematic error of the correction for losses from the requirement of at least 10 TPC clusters per track is taken as 20% of the correction which itself is in the range of 5 to 30%. This estimate arose from differences between the four TPC sectors that were used in our analysis, and from the observed variations with time.

The systematic error of the $p_{\rm T}$ scale is taken as 2% as discussed in Ref. [4]. For the data from the $+15~{\rm GeV}/c$ beams, this error was doubled to account for a larger than usual uncertainty of the correction for dynamic TPC track distortions.

The systematic errors of the proton, pion, and electron abundances are taken as 10%. We stress that errors on abundances only lead to cross-section errors in case of a strong overlap of the resolution functions of both identification variables, dE/dx and β . The systematic error of the correction for migration, absorption of secondary protons and pions in materials, and for pion decay into muons, is taken as 20% of the correction, or 1% of the cross-section, whichever is larger. These estimates reflect our experience with remanent differences between data and Monte Carlo simulations after weighting Monte Carlo events with smooth functions with a view to reproducing the data simultaneously in several variables in the best possible way.

All systematic errors are propagated into the momentum spectra of secondaries and then added in quadrature.

6 CROSS-SECTION RESULTS

In Tables A.1–A.45, collated in the Appendix of this paper, we give the double-differential inclusive cross-sections $d^2\sigma/dpd\Omega$ for various combinations of incoming beam particle and secondary particle, including statistical and systematic errors. In each bin, the average momentum at the vertex and the average polar angle are also given.

The data of Tables A.1–A.45 are available in ASCII format in Ref. [10].

Some bins in the tables are empty. Cross-sections are only given if the total error is not larger than the cross-section itself. Since our track reconstruction algorithm is optimized for tracks with $p_{\rm T}$ above $\sim 70~{\rm MeV/}c$ in the TPC volume, we do not give cross-sections from tracks with $p_{\rm T}$ below this value. Because of the absorption of slow protons in the material between the vertex and the TPC gas, and with a view to keeping the correction for absorption losses below 30%, cross-sections from protons are limited to $p > 450~{\rm MeV/}c$ at the interaction vertex. Proton cross-sections are also not given if a 10% error on the proton energy loss in materials between the interaction vertex and the TPC volume leads to a momentum change larger than 2%. Since the proton energy loss is large in the copper target, particularly at polar angles close to 90 degrees, the latter condition imposes significant restrictions. Pion cross-sections are not given if pions are separated from protons by less than twice the time-of-flight resolution.

The large errors and/or absence of results from the +15 GeV/c pion beams are caused by scarce statistics because the beam composition was dominated by protons.

We present in Figs. 1 to 7 what we consider salient features of our cross-sections.

Figure 1 shows the inclusive cross-sections of the production of protons, π^+ 's, and π^- 's,

⁴⁾In less than 0.5% of the number of good events, because of apparatus malfunction, the number of TPC hits was much larger than possible for a physics event. Such events were considered unphysical and eliminated.

from incoming protons between 3 GeV/c and 15 GeV/c momentum, as a function of their charge-signed $p_{\rm T}$. The data refer to the polar-angle range $20^{\circ} < \theta < 30^{\circ}$. Figures 2 and 3 show the same for incoming π^+ 's and π^- 's.

Figure 4 shows the inclusive cross-sections of the production of protons, π^+ 's, and π^- 's, from incoming protons between 3 GeV/c and 15 GeV/c momentum, this time as a function of their charge-signed polar angle θ . The data refer to the $p_{\rm T}$ range $0.24 < p_{\rm T} < 0.30$ GeV/c. In this $p_{\rm T}$ range pions populate nearly all polar angles, whereas protons are absorbed at large polar angle and thus escape measurement. Figures 5 and 6 show the same for incoming π^+ 's and π^- 's.

In Fig. 7, we present the inclusive cross-sections of the production of secondary π^+ 's and π^- 's, integrated over the momentum range $0.2 GeV/c and the polar-angle range <math>30^\circ < \theta < 90^\circ$ in the forward hemisphere, as a function of the beam momentum.

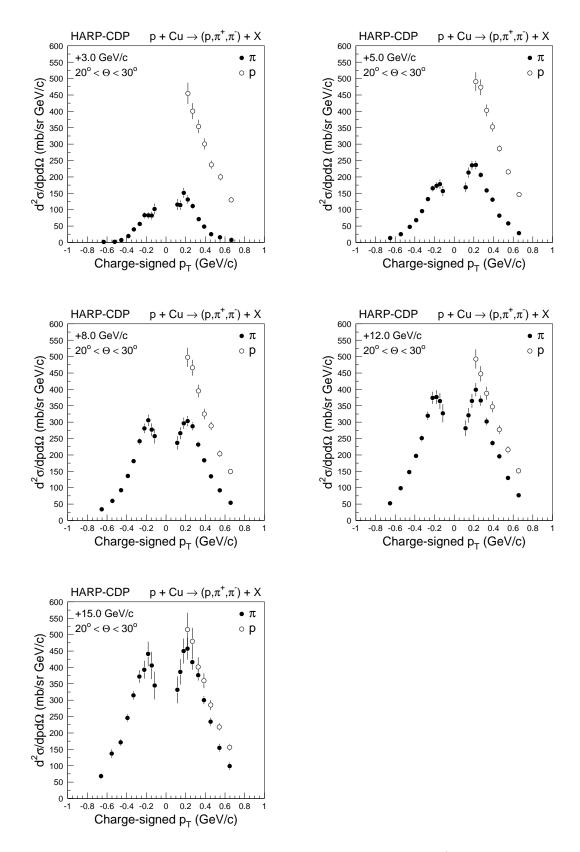


Fig. 1: Inclusive cross-sections of the production of secondary protons, π^+ 's, and π^- 's, by protons on copper nuclei, in the polar-angle range $20^\circ < \theta < 30^\circ$, for different proton beam momenta, as a function of the charge-signed $p_{\rm T}$ of the secondaries; the shown errors are total errors.

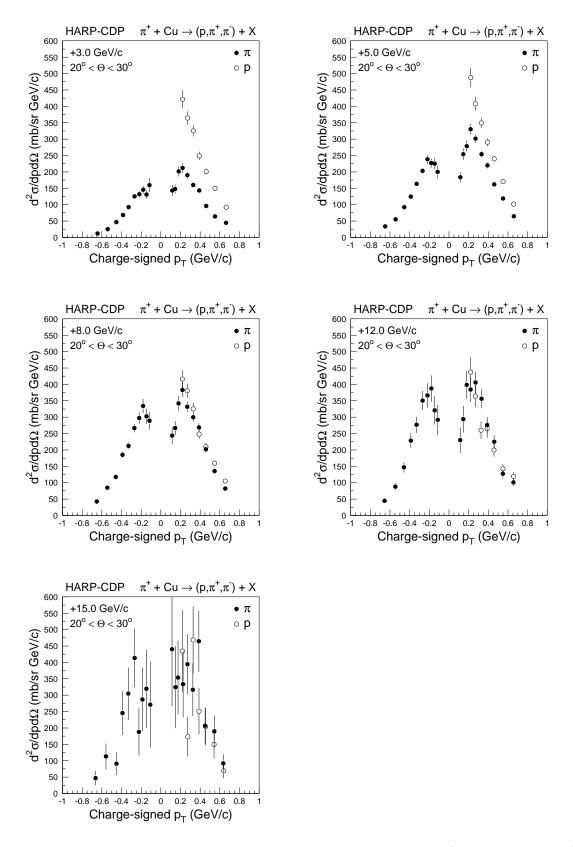


Fig. 2: Inclusive cross-sections of the production of secondary protons, π^+ 's, and π^- 's, by π^+ 's on copper nuclei, in the polar-angle range $20^\circ < \theta < 30^\circ$, for different π^+ beam momenta, as a function of the charge-signed p_T of the secondaries; the shown errors are total errors.

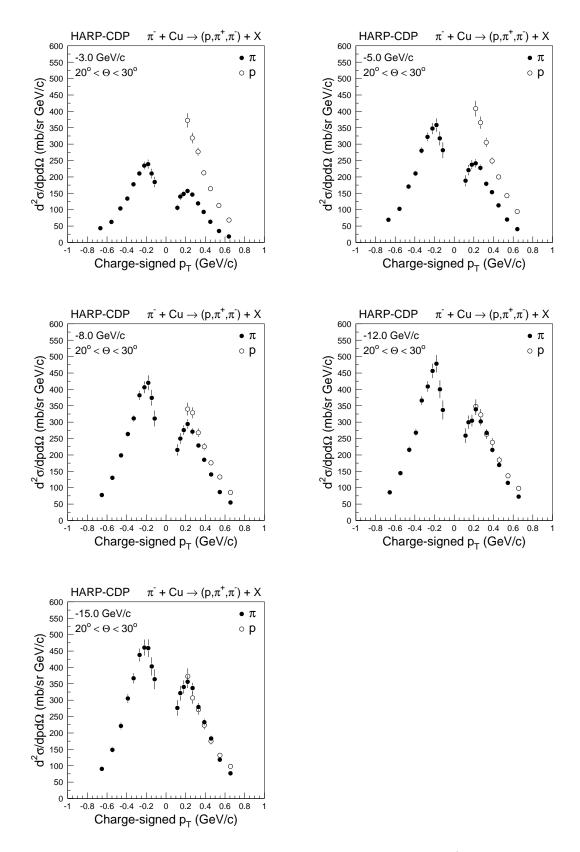


Fig. 3: Inclusive cross-sections of the production of secondary protons, π^+ 's, and π^- 's, by π^- 's on copper nuclei, in the polar-angle range $20^\circ < \theta < 30^\circ$, for different π^- beam momenta, as a function of the charge-signed $p_{\rm T}$ of the secondaries; the shown errors are total errors.

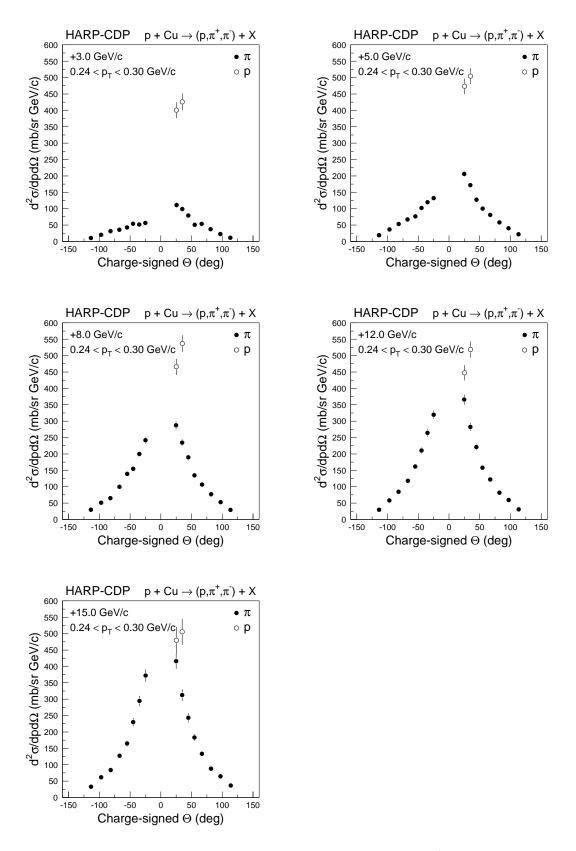


Fig. 4: Inclusive cross-sections of the production of secondary protons, π^+ 's, and π^- 's, with $p_{\rm T}$ in the range 0.24–0.30 GeV/c, by protons on copper nuclei, for different proton beam momenta, as a function of the charge-signed polar angle θ of the secondaries; the shown errors are total errors.

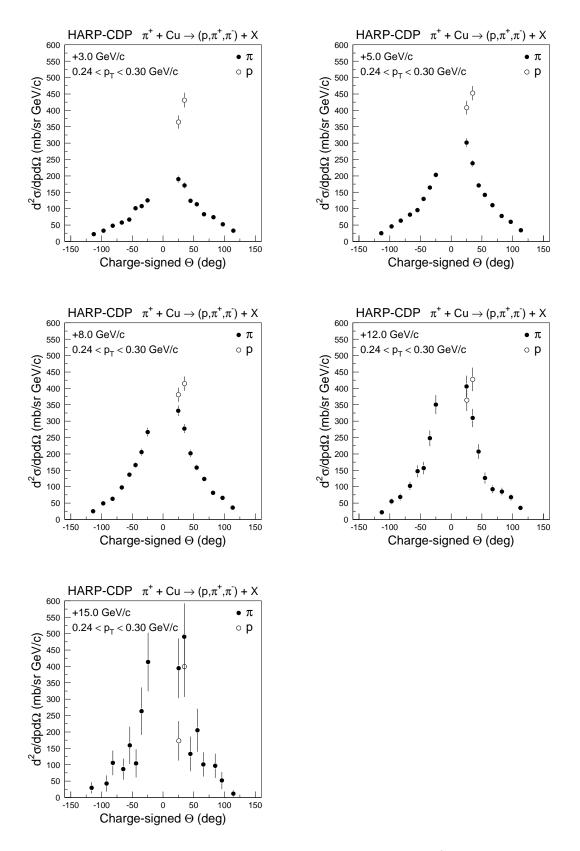


Fig. 5: Inclusive cross-sections of the production of secondary protons, π^+ 's, and π^- 's, with $p_{\rm T}$ in the range 0.24–0.30 GeV/c, by π^+ 's on copper nuclei, for different π^+ beam momenta, as a function of the charge-signed polar angle θ of the secondaries; the shown errors are total errors.

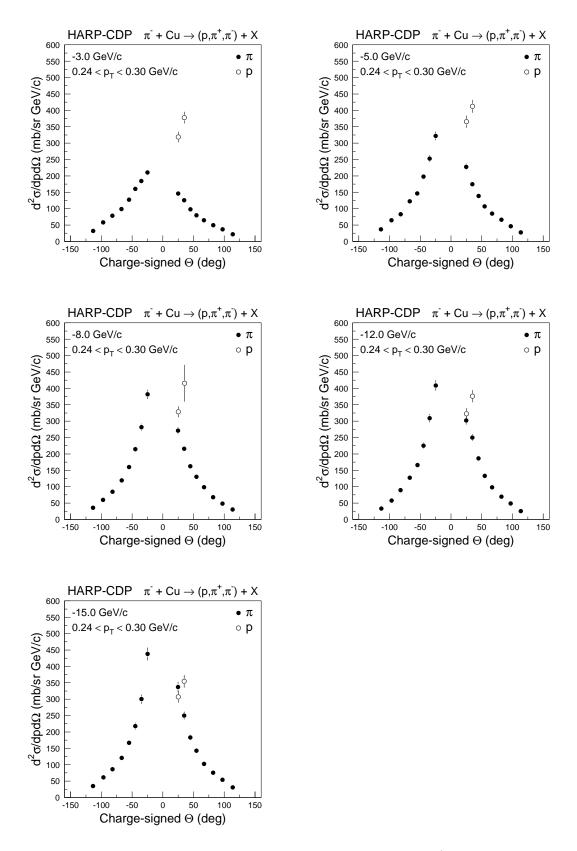


Fig. 6: Inclusive cross-sections of the production of secondary protons, π^+ 's, and π^- 's, with $p_{\rm T}$ in the range 0.24–0.30 GeV/c, by π^- 's on copper nuclei, for different π^- beam momenta, as a function of the charge-signed polar angle θ of the secondaries; the shown errors are total errors.

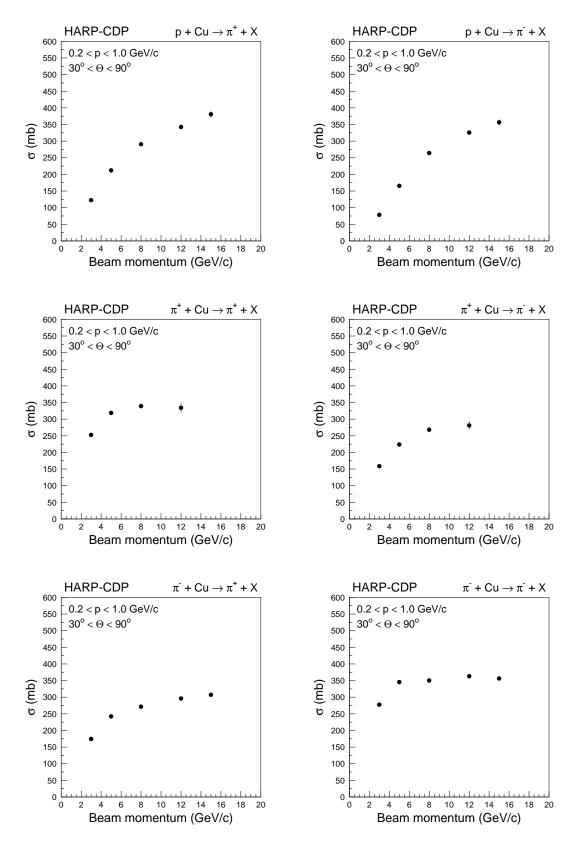


Fig. 7: Inclusive cross-sections of the production of secondary π^+ 's and π^- 's, integrated over the momentum range 0.2 GeV/<math>c and the polar-angle range $30^\circ < \theta < 90^\circ$, from the interactions on copper nuclei of protons (top row), π^+ 's (middle row), and π^- 's (bottom row), as a function of the beam momentum; the shown errors are total errors and mostly smaller than the symbol size.

7 DEUTERON PRODUCTION

Besides pions and protons, also deuterons are produced in sizeable quantities on copper nuclei. Up to momenta of about 1 GeV/c, deuterons are easily separated from protons by dE/dx.

Table 3 gives the ratio of deuteron to proton production as a function of the momentum at the vertex, for 8 GeV/c beam protons, π^+ 's, and π^- 's⁵). Cross-section ratios are not given if the data are scarce and the statistical error becomes comparable with the ratio itself—which is the case for deuterons at the high-momentum end of the spectrum.

The measured deuteron to proton production ratios are illustrated in Fig. 8, and compared with the predictions of Geant4's FRITIOF model. FRITIOF's predictions are shown for the same beam particles for which measured values are plotted. There is virtually no difference between its predictions for incoming protons, π^+ 's and π^- 's. FRITIOF underestimates deuteron production.

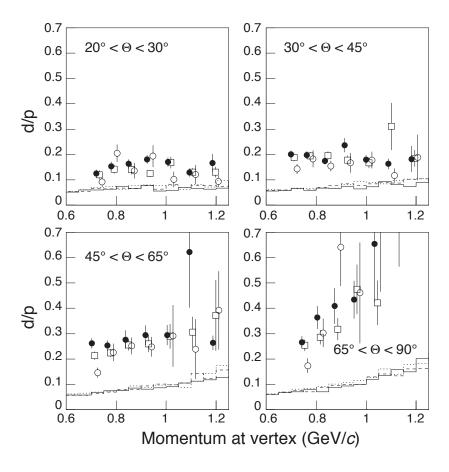


Fig. 8: Deuteron to proton ratio for 8 GeV/c beam particles on copper nuclei, as a function of the momentum at the vertex, for four polar-angle regions; open squares denote beam protons, open circles beam π^+ 's, and full circles beam π^- 's; the full and broken lines denote predictions of Geant4's FRITIOF model for the three different beam particles.

⁵⁾We observe no appreciable dependence of the deuteron to proton ratio on beam momentum.

Table 3: Deuteron to proton ratio for beam protons, π^+ 's, and π^- 's of 8 GeV/c momentum, as a function of the particle momentum p [GeV/c] at the vertex, for five polar-angle regions.

Polar angle		Beam p	Beam π^+	Beam π^-
θ	p	d/p	d/p	d/p
$20^{\circ} - 30^{\circ}$	0.732	0.120 ± 0.018	0.092 ± 0.020	0.125 ± 0.015
	0.792	0.142 ± 0.017	0.205 ± 0.035	0.154 ± 0.017
	0.861	0.141 ± 0.020	0.136 ± 0.031	0.163 ± 0.018
	0.936	0.125 ± 0.014	0.193 ± 0.043	0.181 ± 0.017
	1.019	0.168 ± 0.023	0.102 ± 0.031	0.170 ± 0.018
	1.106	0.130 ± 0.016	0.121 ± 0.038	0.129 ± 0.016
	1.197	0.130 ± 0.021	0.094 ± 0.022	0.166 ± 0.036
$30^{\circ} - 45^{\circ}$	0.711	0.188 ± 0.015	0.143 ± 0.020	0.201 ± 0.014
	0.775	0.194 ± 0.016	0.183 ± 0.034	0.198 ± 0.015
	0.847	0.196 ± 0.016	0.155 ± 0.021	0.175 ± 0.014
	0.926	0.178 ± 0.018	0.167 ± 0.039	0.237 ± 0.028
	1.011	0.167 ± 0.021	0.178 ± 0.033	0.180 ± 0.018
	1.101	0.311 ± 0.093	0.117 ± 0.028	0.163 ± 0.021
	1.194	0.185 ± 0.033	0.188 ± 0.090	0.182 ± 0.051
$45^{\circ} - 65^{\circ}$	0.714	0.213 ± 0.016	0.146 ± 0.020	0.262 ± 0.020
	0.777	0.224 ± 0.016	0.226 ± 0.035	0.253 ± 0.020
	0.850	0.255 ± 0.022	0.252 ± 0.033	0.277 ± 0.036
	0.930	0.260 ± 0.033	0.248 ± 0.039	0.294 ± 0.039
	1.016	0.290 ± 0.049	0.291 ± 0.122	0.294 ± 0.040
	1.106	0.306 ± 0.061	0.239 ± 0.118	0.622 ± 0.219
	1.199	0.372 ± 0.140	0.392 ± 0.155	0.264 ± 0.028
$65^{\circ} - 90^{\circ}$	0.754	0.254 ± 0.023	0.174 ± 0.029	0.266 ± 0.024
	0.816	0.286 ± 0.028	0.303 ± 0.056	0.364 ± 0.045
	0.886	0.318 ± 0.044	0.641 ± 0.153	0.409 ± 0.071
	0.963	0.475 ± 0.098	0.461 ± 0.199	0.434 ± 0.075
	1.045	0.422 ± 0.088	0.789 ± 0.323	0.655 ± 0.229
	1.132	0.826 ± 0.262		
$90^{\circ} - 125^{\circ}$	0.743	0.316 ± 0.038	0.277 ± 0.042	0.255 ± 0.028
	0.809	0.418 ± 0.055	0.367 ± 0.077	0.399 ± 0.063
	0.883	0.788 ± 0.194	0.575 ± 0.230	0.903 ± 0.297
	0.963		0.466 ± 0.180	0.810 ± 0.250

8 COMPARISON OF CHARGED-PION PRODUCTION ON BERYLLIUM, COPPER, AND TALLIM

Figure 9 presents a comparison between the inclusive cross-sections of π^+ and π^- production, integrated over the secondaries' momentum range $0.2 GeV/c and polar-angle range <math>30^\circ < \theta < 90^\circ$, in the interactions of protons, π^+ and π^- , with beryllium (A = 9.01), copper (A = 63.55), and tantalum (A = 181.0) nuclei⁶). The comparison employs the scaling variable $A^{2/3}$ where A is the atomic number of the respective nucleus. We note the approximately linear dependence on this scaling variable. At low beam momentum, the slope exhibits a strong dependence on beam particle type, which tends to disappear with higher beam momentum.

 $^{^{6)}}$ The beryllium data with +8.9 GeV/c beam momentum [1, 2] have been scaled, by interpolation, to a beam momentum of 8.0 GeV/c.

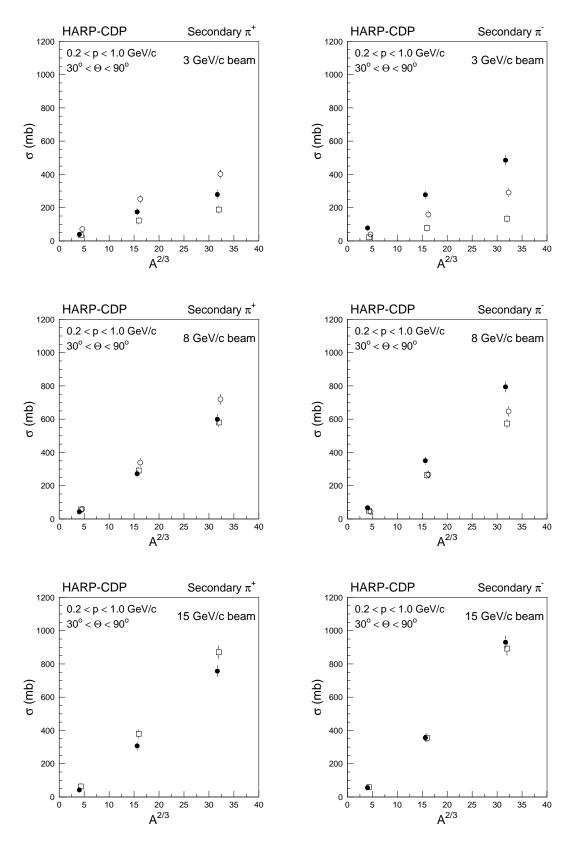


Fig. 9: Inclusive cross-sections of π^+ and π^- production by protons (open squares), π^+ 's (open circles), and π^- 's (black circles), as a function of $A^{2/3}$ for, from left to right, beryllium, copper, and tantalum nuclei; the cross-sections are integrated over the momentum range $0.2 GeV/c and the polarangle range <math>30^\circ < \theta < 90^\circ$; the shown errors are total errors and often smaller than the symbol size.

9 COMPARISON OF OUR RESULTS WITH RESULTS FROM OTHER EXPERIMENTS

9.1 Comparison with E802 results

Experiment E802 [11] at Brookhaven National Laboratory (BNL) measured secondary π^+ 's in the polar-angle range $5^{\circ} < \theta < 58^{\circ}$ from the interactions of +14.6 GeV/c protons with copper nuclei.

Figure 10 shows their published Lorentz-invariant cross-section of π^+ and π^- production by $+14.6~{\rm GeV/}c$ protons, in the rapidity range 1.2 < y < 1.4, as a function of $m_{\rm T} - m_{\pi}$, where $m_{\rm T}$ denotes the pion transverse mass. Their data are compared with our cross-sections from the interactions of $+15.0~{\rm GeV/}c$ protons with copper nuclei, expressed in the same unit as used by E802. Since E802 quoted only statistical errors, our data in Fig. 10 are also shown with their statistical errors.

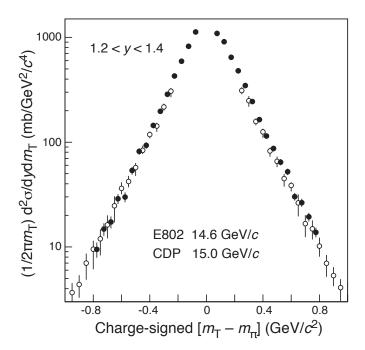


Fig. 10: Comparison of our cross-sections (black circles) of π^{\pm} production by +15.0 GeV/c protons off copper nuclei, with the cross-sections on copper nuclei published by the E802 Collaboration for the proton beam momentum of +14.6 GeV/c (open circles); all errors are statistical only.

The E802 π^{\pm} cross-sections are in good agreement with our cross-sections measured nearly at the same proton beam momentum, taking into account the normalization uncertainty of (10–15)% quoted by E802. We draw attention to the good agreement of the slopes of the cross-sections over two orders of magnitude.

9.2 Comparison with E910 results

BNL experiment E910 [12] measured secondary charged pions in the momentum range 0.1–6 GeV/c from the interactions of +12.3 GeV/c protons with copper nuclei. This experiment used a TPC for the measurement of secondaries, with a comfortably large track length of \sim 1.5 m.

This feature, together with a magnetic field strength of 0.5 T, is of particular significance, since it permits considerably better charge identification and proton–pion separation by $\mathrm{d}E/\mathrm{d}x$ than is possible in the HARP detector. Figure 11 shows their published cross-section $\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}\Omega$ of π^\pm production by +12.3 GeV/c protons, in the polar-angle range 0.8 < $\cos\theta$ < 0.9. Since E910 quoted only statistical errors, our data in Fig. 11 from the interactions of +12.0 GeV/c protons with copper are also shown with their statistical errors. The normalization uncertainty quoted by E910 is <5%.

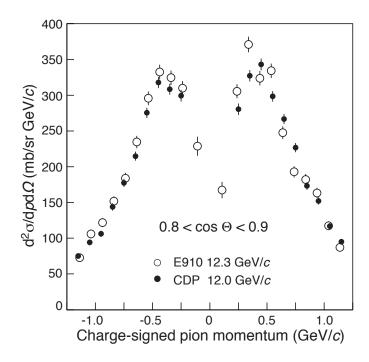


Fig. 11: Comparison of our cross-sections (black circles) of π^{\pm} production by +12.0 GeV/c protons off copper nuclei, with the cross-sections published by the E910 Collaboration for the proton beam momentum of +12.3 GeV/c (open circles); all errors are statistical only.

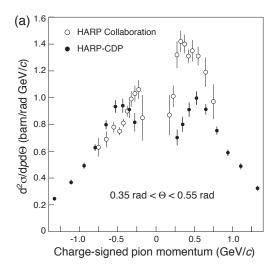
Also here, the E910 data are shown as published, and our data are expressed in the same unit as used by E910. We draw attention to the good agreement in the π^+/π^- ratio between the cross-sections from E910 and our cross-sections.

9.3 Comparison with results from the HARP Collaboration

Figure 12 (a) shows the comparison of our cross-sections of pion production by $+12.0~{\rm GeV/}c$ protons off copper nuclei with the ones published by the HARP Collaboration [13], in the polar-angle range $0.35 < \theta < 0.55$ rad. The latter cross-sections are plotted as published, while we expressed our cross-sections in the unit used by the HARP Collaboration. Figure 12 (b) shows our ratio π^+/π^- as a function of the polar angle θ in comparison with the ratios published by the E910 Collaboration (at the slightly different proton beam momentum of $+12.3~{\rm GeV/}c$) and by the HARP Collaboration.

The discrepancy between our results and those published by the HARP Collaboration is evident. We note the difference especially of the π^+ cross-section, and the difference in the

reported momentum range. The discrepancy is even more serious as the same data set has been analysed by both groups.



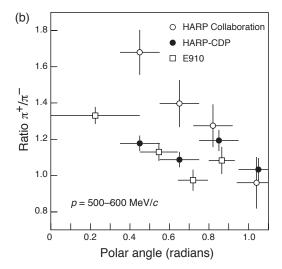


Fig. 12: (a) Comparison of our cross-sections (black circles) of π^{\pm} production by $+12.0~{\rm GeV/}c$ protons off copper nuclei with the cross-sections published by the HARP Collaboration (open circles); (b) Comparison of our ratio π^+/π^- at $+12.0~{\rm GeV/}c$ beam momentum as a function of the polar angle θ with the ratios published by the HARP Collaboration; also shown are the ratios π^+/π^- published by the E910 Collaboration for a $+12.3~{\rm GeV/}c$ beam momentum; in (a) total errors are shown; in (b) for the HARP Collaboration total errors are shown (only those are published), for E910 and our group, the errors are statistical only.

We hold that the discrepancy is caused by problems in the HARP Collaboration's data analysis. They result primarily, but not exclusively, from a lack of understanding TPC track distortions and RPC timing signals. These problems, together with others that affect the HARP Collaboration's data analysis, are discussed in detail in Refs [14–16] and summarized in the Appendix of Ref. [1].

10 SUMMARY

From the analysis of data from the HARP large-angle spectrometer (polar angle θ in the range $20^{\circ} < \theta < 125^{\circ}$), double-differential cross-sections $\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}\Omega$ of the production of secondary protons, π^+ 's, and π^- 's, and of deuterons, have been obtained. The incoming beam particles were protons and pions with momenta from ± 3 to ± 15 GeV/c, impinging on a 5% λ_{abs} thick stationary copper target. Our cross-sections for π^+ and π^- production agree with results from BNL experiments E802 and E910 but disagree with the results of the HARP Collaboration that were obtained from the same raw data.

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We are greatly indebted to many technical collaborators whose diligent and hard work made the HARP detector a well-functioning instrument. We thank all HARP colleagues who devoted time and effort to the design and construction of the detector, to data taking, and to setting up the computing and software infrastructure. We express our sincere gratitude to HARP's funding agencies for their support.

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APPENDIX A: CROSS-SECTION TABLES

Table A.1: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in p + Cu \rightarrow p + X interactions with +3.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta <$							$30 < \theta <$	40		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.222	25.1	454.76	±	20.41	\pm	25.27						
0.24-0.30	0.271	25.4	400.56	±	14.75	\pm	19.36	0.271	35.0	425.92	L 17.82	\pm	19.16
0.30-0.36	0.331	25.1	353.84	±	14.06	\pm	14.96	0.331	35.0	396.34	L 14.24	\pm	15.27
0.36-0.42	0.393	25.1		±	12.77	\pm	11.05	0.392	34.7		L 13.67	\pm	11.68
0.42-0.50	0.461	25.1	236.99	±	9.69	\pm	7.73	0.462	35.0	276.40	E 10.44	\pm	8.13
0.50-0.60	0.553	25.3	199.75	±	8.09	\pm	6.61	0.551	35.2	214.18	E 8.27	\pm	6.46
0.60-0.72	0.663	24.9	129.62	±	5.98	\pm	5.58	0.666	35.3		6.08 €	\pm	5.37
0.72-0.90								0.813	35.0	78.77	± 3.82	±	4.63
			$40 < \theta <$							$50 < \theta <$			
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	5		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.332	45.2	438.14	±	15.06	\pm	14.48						
0.36-0.42	0.393	45.1	393.90 :	±	14.55	\pm	11.68	0.392	55.2		E 13.18	\pm	10.43
0.42-0.50	0.462	45.2		±	10.82	\pm	8.44	0.462	54.9		L 10.63	\pm	8.49
0.50-0.60	0.555	45.0		±	8.91	\pm	7.64	0.551	54.8		₺ 8.22	\pm	7.32
0.60-0.72	0.665	44.7		±	6.87	\pm	7.14	0.665	54.9		E 6.31	\pm	6.60
0.72-0.90	0.809	45.2		±	3.92	\pm	4.89	0.809	54.9		∃ 3.71	\pm	4.71
0.90-1.25	1.053	44.7	23.80	±	1.33	\pm	2.31	1.056	54.8	17.83	L 1.14	\pm	1.84
			$60 < \theta <$							$75 < \theta <$			
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.549	67.5		±	6.43	\pm	7.75						
0.60-0.72	0.657	67.1		±	4.54	\pm	6.56	0.655	81.4		£ 3.38	\pm	5.28
0.72-0.90	0.805	66.8		±	2.61	\pm	4.83	0.795	81.2		L 1.66	\pm	2.53
0.90-1.25	1.037	66.0	13.58	±	0.84	±	1.83	1.032	81.9	4.72	⊢ 0.46	±	0.76
			$90 < \theta <$							$105 < \theta <$			
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	5		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.457	112.6		£ 3.83	±	4.74
0.50-0.60								0.543	112.0		£ 2.10	\pm	3.14
0.60-0.72	0.651	97.1		±	2.22	\pm	2.85	0.654	112.6		L 0.99	\pm	1.21
0.72-0.90	0.797	96.2		±	1.07	\pm	1.30	0.794	111.2		£ 0.34	\pm	0.36
0.90-1.25	1.013	94.6	1.32	±	0.23	\pm	0.26	1.059	115.1	0.11	⊢ 0.04	±	0.05

Table A.2: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in p + Cu $\to \pi^+$ + X interactions with +3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$) < 3	80					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\frac{1}{\sigma/dpd\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	25.2	115.62	±	13.74	±	10.13	0.115	35.1	112.03	±	13.00	±	9.14
0.13-0.16	0.145	25.3	113.77	\pm	12.16	\pm	7.91	0.144	35.1	121.45	\pm	12.24	\pm	8.73
0.16-0.20	0.180	25.1	151.41	\pm	12.15	\pm	9.05	0.180	35.0	102.01	\pm	9.31	\pm	5.97
0.20-0.24	0.221	24.9	131.06	\pm	10.88	\pm	6.84	0.223	34.5	120.40	\pm	10.02	\pm	6.17
0.24-0.30	0.271	25.6	111.15	\pm	7.97	\pm	4.64	0.270	35.0	98.69	\pm	7.33	\pm	4.19
0.30-0.36	0.332	24.7	71.19	\pm	6.14	\pm	2.89	0.329	34.5	78.67	\pm	6.53	\pm	3.19
0.36-0.42	0.389	24.7	48.40	\pm	5.15	\pm	2.30	0.393	35.3	57.71	\pm	5.49	\pm	2.53
0.42-0.50	0.458	25.3	25.20	\pm	3.09	\pm	1.27	0.464	34.8	25.58	\pm	3.14	\pm	1.22
0.50-0.60	0.548	24.9	15.68	\pm	1.99	\pm	1.05	0.549	35.1	18.10	\pm	2.26	\pm	1.12
0.60-0.72	0.665	24.4	7.71	\pm	1.19	\pm	0.72	0.658	34.7	8.21	\pm	1.26	\pm	0.72
0.72-0.90								0.785	36.0	3.29	\pm	0.66	\pm	0.46
		l .	$40 < \theta$) < 5	50					$50 < \theta$				
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$	10 (0		$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\frac{\sigma}{dp}$	2	
0.10-0.13	0.115	44.6	112.47	±	13.00	±	9.25	(1 1)	. ,			, -		
0.13-0.16	0.144	44.9	77.04	\pm	9.42	\pm	5.46	0.146	54.6	85.37	\pm	10.32	\pm	5.91
0.16-0.20	0.182	45.0	106.71	\pm	9.49	\pm	6.37	0.180	54.7	90.95	\pm	8.94	\pm	5.43
0.20-0.24	0.221	45.2	101.91	\pm	9.27	\pm	5.53	0.221	54.7	79.07	\pm	8.29	\pm	4.47
0.24-0.30	0.267	44.7	79.17	\pm	6.65	\pm	3.53	0.271	55.1	50.77	\pm	5.22	\pm	2.34
0.30-0.36	0.328	44.6	54.84	\pm	5.52	\pm	2.35	0.331	54.4	38.98	\pm	4.59	\pm	1.72
0.36-0.42	0.391	44.6	49.56	\pm	5.14	\pm	2.27	0.393	55.3	39.68	\pm	4.73	\pm	1.93
0.42-0.50	0.455	44.7	27.22	\pm	3.31	\pm	1.34	0.462	54.6	18.69	\pm	2.75	\pm	0.99
0.50-0.60	0.543	44.2	16.69	\pm	2.23	\pm	1.05	0.543	54.6	14.37	\pm	2.13	\pm	0.97
0.60-0.72	0.663	45.0	8.48	\pm	1.35	\pm	0.72	0.660	54.8	7.34	\pm	1.35	\pm	0.67
0.72-0.90	0.795	44.7	4.04	\pm	0.75	\pm	0.51	0.812	55.0	1.97	\pm	0.55	\pm	0.25
0.90-1.25								1.028	52.9	0.94	\pm	0.23	\pm	0.21
			$60 < \theta$) < 7	75					$75 < \theta$	< 90)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.13-0.16	0.146	67.3	94.26	±	9.66	±	6.49	0.149	81.7	73.25	±	10.56	\pm	8.47
0.16-0.20	0.181	67.3	86.73	\pm	7.11	\pm	4.78	0.181	82.3	67.42	\pm	6.48	\pm	3.61
0.20-0.24	0.220	67.0	70.73	\pm	6.40	\pm	3.73	0.221	82.5	58.65	\pm	5.76	\pm	2.96
0.24-0.30	0.268	66.6	53.54	\pm	4.45	\pm	2.41	0.269	81.1	37.52	\pm	3.87	\pm	1.93
0.30-0.36	0.328	67.4	30.31	\pm	3.28	\pm	1.30	0.329	82.0	25.99	\pm	3.14	\pm	1.36
0.36-0.42	0.389	66.8	25.85	\pm	3.18	\pm	1.35	0.391	82.2	17.33	\pm	2.62	\pm	1.13
0.42-0.50	0.456	66.8	18.38	\pm	2.26	\pm	1.05	0.463	81.4	9.19	\pm	1.60	\pm	0.67
0.50-0.60	0.538	66.8	7.77	\pm	1.30	\pm	0.59	0.548	79.5	6.11	\pm	1.20	\pm	0.61
0.60-0.72	0.656	66.2	3.98	\pm	0.79	\pm	0.41	0.660	80.2	3.31	\pm	0.78	\pm	0.46
0.72-0.90	0.781	67.4	1.63	\pm	0.40	\pm	0.24	0.770	84.1	0.78	\pm	0.29	\pm	0.18
0.90–1.25	1.054	68.4	0.36	±	0.11	±	0.10							
			$90 < \theta$							$105 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle heta angle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.13-0.16	0.146	98.4	112.19	±	13.63	±	12.61	0.145	114.4	71.16	±	7.10	\pm	4.18
0.16-0.20	0.178	97.7	61.01	\pm	6.36	\pm	3.18	0.178	113.9	59.25	\pm	5.31	\pm	2.80
0.20-0.24	0.218	97.3	51.06	\pm	5.63	\pm	2.84	0.220	113.8	30.50	\pm	3.57	\pm	1.62
0.24-0.30	0.270	96.8	22.52	\pm	2.89	±	1.11	0.265	113.2	11.34	\pm	1.83	\pm	0.69
0.30-0.36	0.327	96.2	18.45	\pm	2.68	±	1.22	0.328	113.9	4.92	\pm	1.17	\pm	0.41
0.36-0.42	0.386	98.4	8.78	±	1.81	±	0.72	0.387	112.5	3.30	±	0.96	\pm	0.38
0.42-0.50	0.457	96.7	5.88	±	1.30	±	0.61	0.471	113.7	1.85	\pm	0.62	\pm	0.28
0.50-0.60 0.60-0.72	0.543	96.5	1.58	±	0.59	±	0.23							
	0.627	97.2	0.36	\pm	0.25	\pm	0.10	1	1	1				

Table A.3: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in p + Cu $\to \pi^-$ + X interactions with +3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 4	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\frac{2\sigma}{\mathrm{d}p\mathrm{d}s}$	Ω	
0.10-0.13	0.117	24.5	102.15	\pm	12.97	\pm	9.74	0.115	34.2	94.31	\pm	11.53	\pm	8.13
0.13-0.16	0.145	25.6	81.94	\pm	10.38	\pm	6.12	0.144	34.8	71.57	\pm	9.16	\pm	5.57
0.16-0.20	0.179	25.0	82.63	\pm	8.74	\pm	5.25	0.176	34.8	71.03	\pm	7.48	\pm	4.72
0.20-0.24	0.219	25.1	82.87	\pm	8.47	\pm	4.75	0.220	34.4	77.33	\pm	8.22	\pm	4.69
0.24-0.30	0.268	25.3	56.50	\pm	5.68	\pm	2.80	0.264	35.2	51.48	\pm	5.35	\pm	2.51
0.30-0.36	0.327	24.9	39.58	\pm	4.68	\pm	2.17	0.328	34.7	37.06	\pm	4.47	\pm	1.90
0.36-0.42	0.383	25.0	19.39	\pm	3.28	\pm	1.27	0.385	34.4	23.52	\pm	3.59	\pm	1.39
0.42-0.50	0.454	25.7	7.24	\pm	1.76	\pm	0.61	0.457	34.8	13.11	\pm	2.28	\pm	0.92
0.50-0.60	0.522	23.7	1.98	\pm	0.81	\pm	0.26	0.530	34.7	5.47	\pm	1.32	\pm	0.52
0.60-0.72	0.634	25.8	1.37	\pm	0.73	\pm	0.38	0.649	34.5	2.91	\pm	0.92	\pm	0.41
0.72-0.90								0.752	36.9	0.52	\pm	0.37	\pm	0.14
			$40 < \theta$	< 5	0					$50 < \theta$	< 6	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$			$\frac{2\sigma}{\mathrm{d}p\mathrm{d}s}$	Ω	
0.10-0.13	0.116	45.1	75.09	±	10.69	±	6.45	1 /	` ′					
0.13-0.16	0.144	45.0	69.81	\pm	9.13	\pm	5.26	0.144	54.2	67.34	\pm	9.19	\pm	5.04
0.16-0.20	0.178	44.9	64.03	\pm	7.33	\pm	4.37	0.179	55.0	74.82	\pm	8.09	\pm	4.87
0.20-0.24	0.219	45.3	62.37	\pm	7.35	\pm	3.90	0.221	55.1	52.35	\pm	6.42	\pm	3.28
0.24-0.30	0.265	45.1	53.90	\pm	5.55	\pm	2.71	0.270	55.0	42.47	\pm	4.75	\pm	2.23
0.30-0.36	0.326	45.4	33.38	\pm	4.40	\pm	1.74	0.325	55.2	28.48	\pm	3.96	\pm	1.44
0.36-0.42	0.382	45.4	25.50	\pm	3.71	\pm	1.47	0.387	55.8	23.98	\pm	3.66	\pm	1.37
0.42-0.50	0.451	44.4	13.03	\pm	2.30	\pm	0.86	0.449	54.1	16.26	\pm	2.55	\pm	1.07
0.50-0.60	0.532	44.9	13.34	\pm	2.17	\pm	1.18	0.542	55.4	6.30	\pm	1.49	\pm	0.55
0.60-0.72	0.626	46.2	3.35	\pm	0.94	\pm	0.44	0.645	55.2	3.46	\pm	0.96	\pm	0.45
0.72-0.90	0.765	45.3	0.95	\pm	0.42	\pm	0.20	0.789	51.6	1.08	\pm	0.44	\pm	0.23
			$60 < \theta$	< 7	5					$75 < \theta$	< 9	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}s$	Ω	
0.13-0.16	0.145	67.3	86.06	\pm	9.20	\pm	5.90	0.148	82.1	62.92	\pm	10.65	\pm	6.77
0.16-0.20	0.181	67.6	65.36	\pm	6.11	\pm	3.71	0.178	82.7	60.30	\pm	6.22	\pm	3.47
0.20-0.24	0.221	68.0	43.33	\pm	5.02	\pm	2.50	0.218	82.2	41.98	\pm	4.80	\pm	2.26
0.24-0.30	0.269	67.6	35.50	\pm	3.65	\pm	1.73	0.268	81.9	31.06	\pm	3.44	\pm	1.66
0.30-0.36	0.328	66.4	26.03	\pm	3.11	\pm	1.27	0.323	80.8	17.47	\pm	2.62	\pm	1.08
0.36-0.42	0.386	66.9	17.11	\pm	2.54	\pm	0.97	0.382	82.6	15.12	\pm	2.42	\pm	1.10
0.42-0.50	0.453	66.9	12.22	\pm	1.87	\pm	0.82	0.452	82.1	5.16	\pm	1.19	\pm	0.45
0.50-0.60	0.537	65.9	4.45	\pm	1.00	\pm	0.40	0.535	82.3	2.72	\pm	0.79	\pm	0.34
0.60-0.72	0.648	67.2	0.79	\pm	0.39	\pm	0.11	0.655	82.0	1.72	\pm	0.57	\pm	0.38
0.72-0.90	0.822	69.7	0.62	±	0.28	±	0.15	0.745	84.6	1.08	±	0.48	±	0.59
			$90 < \theta$							$105 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}s$		
0.13-0.16								0.144	114.8	54.21	±	6.48	±	3.45
0.16-0.20	0.178	97.2	50.38	\pm	5.75	\pm	2.92	0.178	114.7	37.86	\pm	4.20	\pm	2.00
0.20-0.24	0.219	97.3	30.40	\pm	4.13	\pm	1.73	0.216	113.1	21.13	\pm	3.00	\pm	1.36
0.24-0.30	0.267	97.0	20.38	\pm	2.81	\pm	1.25	0.265	113.8	10.46	\pm	1.72	\pm	0.80
0.30-0.36	0.324	96.8	10.54	\pm	1.99	\pm	0.83	0.335	113.8	2.53	\pm	0.84	\pm	0.28
0.36-0.42	0.384	98.0	4.12	\pm	1.25	\pm	0.43	0.396	113.9	1.72	\pm	0.70	\pm	0.27
0.42-0.50	0.449	95.1	1.72	\pm	0.70	\pm	0.23	0.440	114.2	1.62	\pm	0.54	\pm	0.38
0.50-0.60	0.558	94.9	1.29	±	0.53	±	0.29							

Table A.4: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^+ + Cu \to p + X interactions with +3.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \ell$							$30 < \theta$	< 4	0		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.20-0.24	0.221	25.3	421.79	\pm	14.72	\pm	23.52							
0.24-0.30	0.271	25.2	364.28	\pm	10.24	\pm	17.75	0.272	34.8	431.30	\pm	11.49	\pm	19.50
0.30-0.36	0.331	25.3	325.25	\pm	9.91	\pm	13.88	0.332	35.1	374.11	\pm	10.14	\pm	14.53
0.36-0.42	0.391	25.3	249.09	\pm	8.50	\pm	9.41	0.391	35.1	303.36	\pm	9.36	\pm	10.27
0.42-0.50	0.462	25.4	200.66	\pm	6.50	\pm	6.80	0.463	35.1	244.71	\pm	7.19	\pm	7.36
0.50-0.60	0.552	25.4	149.71	\pm	5.05	\pm	5.13	0.552	35.3	190.54	\pm	5.69	\pm	5.89
0.60-0.72	0.664	25.3	92.11	\pm	3.57	\pm	4.04	0.663	35.2	120.94	\pm	4.12	\pm	4.84
0.72-0.90								0.812	35.1	64.51	\pm	2.45	\pm	3.82
			$40 < \theta$							$50 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.30-0.36	0.331	45.1	403.88	\pm	10.57	\pm	13.48							
0.36-0.42	0.392	45.1	357.46	\pm	10.17	\pm	10.74	0.392	55.1	348.76	\pm	9.61	\pm	10.66
0.42-0.50	0.462	45.1	287.69	\pm	7.74	\pm	8.18	0.463	55.1	298.97	\pm	7.84	\pm	8.70
0.50-0.60	0.554	45.2	208.42	\pm	5.99	\pm	6.56	0.553	55.0	211.26	\pm	5.99	\pm	7.30
0.60-0.72	0.664	45.0	144.07	\pm	4.60	\pm	6.05	0.663	54.8	132.03	\pm	4.37	\pm	5.97
0.72-0.90	0.817	45.1	78.38	\pm	2.72	\pm	4.57	0.810	55.1	70.82	\pm	2.63	\pm	4.52
0.90-1.25	1.053	44.7	19.06	±	0.85	±	1.86	1.049	55.0	17.12	\pm	0.81	\pm	1.77
			$60 < \theta$	0 < 7	['] 5					$75 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.50-0.60	0.549	67.7	201.54	±	4.63	±	7.49							
0.60-0.72	0.658	67.1	121.15	\pm	3.33	\pm	6.60	0.656	81.9	83.87	\pm	2.68	\pm	6.06
0.72-0.90	0.802	67.1	53.99	\pm	1.82	\pm	4.41	0.800	81.7	34.02	\pm	1.41	\pm	3.40
0.90–1.25	1.034	66.8	13.39	\pm	0.60	\pm	1.81	1.032	81.3	6.40	\pm	0.39	\pm	1.03
			$90 < \theta$							$105 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.42-0.50								0.458	113.2	114.79	\pm	3.36	\pm	6.35
0.50-0.60								0.544	112.9	48.37	\pm	1.88	\pm	4.57
0.60-0.72	0.655	97.3	46.36	\pm	1.99	\pm	4.19	0.651	112.1	16.35	\pm	1.02	\pm	2.32
0.72-0.90	0.798	96.1	16.01	\pm	0.95	\pm	1.88	0.794	111.9	3.53	\pm	0.36	\pm	0.77
0.90-1.25	1.031	95.5	2.13	±	0.21	<u>±</u>	0.40	1.030	111.3	0.31	±	0.05	±	0.12

Table A.5: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^+ + Cu $\to \pi^+$ + X interactions with +3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$							$30 < \theta$	$\theta < 4$	10		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	24.9	143.38	±	10.93	\pm	12.40	0.115	35.2	138.39	±	10.44	±	11.11
0.13-0.16	0.146	25.1	147.65	\pm	9.98	\pm	9.64	0.146	35.2	150.54	\pm	9.67	\pm	10.04
0.16-0.20	0.182	24.9	201.29	\pm	9.96	\pm	11.46	0.181	35.0	149.48	\pm	8.16	\pm	8.08
0.20-0.24	0.222	24.7	212.13	\pm	10.00	\pm	10.53	0.220	34.7	167.65	\pm	8.54	\pm	7.81
0.24-0.30	0.270	24.9	190.05	\pm	7.52	\pm	7.26	0.272	34.9	170.94	\pm	6.98	\pm	6.54
0.30-0.36	0.330	25.0	159.98	\pm	6.83	\pm	5.54	0.332	34.9	157.11	\pm	6.79	\pm	5.41
0.36-0.42	0.391	25.2	143.36	\pm	6.63	\pm	5.81	0.392	35.0	114.99	\pm	5.68	\pm	4.01
0.42-0.50	0.462	25.2	95.92	\pm	4.50	\pm	3.91	0.465	35.1	92.00	\pm	4.46	\pm	3.50
0.50-0.60	0.551	25.3	64.37	\pm	3.17	\pm	3.55	0.554	35.1	59.07	\pm	3.12	\pm	3.00
0.60-0.72	0.664	24.9	44.74	\pm	2.38	\pm	3.68	0.666	35.0	42.99	\pm	2.33	\pm	3.13
0.72-0.90								0.817	34.8	25.64	\pm	1.50	\pm	3.04
			$40 < \theta$) / !	50					$50 < \theta$	9 < 6			
2000	$\langle p_{ m T} angle$	$\langle \theta \rangle$	10 \ 0		$\frac{\partial}{\partial \sigma/\mathrm{d}p\mathrm{d}\Omega}$)		$\langle p_{ m T} angle$	$\langle \theta \rangle$	00 \ 0		$\frac{2\sigma}{\mathrm{d}p}\mathrm{d}\Omega$)	
0.10-0.13	0.117	45.1	127.88	±	10.14	±	10.54	\P'1'/	(0)		- u	o / apas		
0.10-0.13	0.117	44.8	129.75	\pm	8.76	±	8.63	0.146	54.8	130.28	\pm	9.29	\pm	8.65
0.16-0.20	0.143	45.2	138.62	±	7.82	±	7.59	0.140	54.9	127.84	±	7.58	±	6.94
0.20-0.24	0.220	44.9	144.00	\pm	7.94	\pm	6.91	0.220	55.1	126.33	\pm	7.50	±	6.20
0.24-0.30	0.271	44.8	124.06	±	6.02	±	4.89	0.270	54.8	113.54	\pm	5.66	±	4.45
0.30-0.36	0.330	44.8	129.37	±	6.22	±	4.72	0.332	54.7	92.68	\pm	5.18	±	3.32
0.36-0.42	0.391	44.8	97.59	±	5.31	±	3.51	0.392	54.9	91.82	\pm	5.27	±	3.65
0.42-0.50	0.462	44.7	86.91	\pm	4.35	±	3.38	0.465	55.0	69.38	\pm	3.93	±	2.97
0.50-0.60	0.553	45.0	54.93	±	3.04	±	2.75	0.549	54.5	44.58	\pm	2.78	±	2.42
0.60-0.72	0.659	44.8	38.40	±	2.32	±	2.70	0.663	55.1	30.07	\pm	2.09	±	2.25
0.72-0.90	0.813	45.0	22.35	\pm	1.43	±	2.40	0.817	54.8	14.62	\pm	1.17	±	1.57
0.90-1.25	0.013	43.0	22.33		1.43		2.40	1.055	54.9	3.27	\pm	0.32	±	0.55
0.50 1.20			$60 < \theta$) / 5	7			1.000	U,	$75 < \epsilon$			_	0.00
m	$\langle p_{ m T} angle$	$\langle \theta \rangle$	00 < 0		$\frac{\sigma}{\sigma/dpd\Omega}$	<u> </u>		$\langle p_{ m T} angle$	$\langle \theta \rangle$	13 < 0		$\frac{\partial}{\partial \sigma} dp d\Omega$)	
0.13-0.16	0.146	66.7	128.88	±	8.29	±	9.10	0.143	80.6	341.40	±	181.68	±	59.84
0.15-0.10	0.140	67.2	126.55	±	6.29	±	6.56	0.143	82.3	110.60	±	6.17	±	5.69
0.10=0.20	0.179	67.7	103.24	±	5.49	±	4.74	0.179	82.0	98.76	±	5.41	±	4.28
0.20-0.24	0.220	66.7	83.14	±	4.02	±	3.19	0.220	82.0	73.82	±	3.92	±	3.31
0.30-0.36	0.330	67.0	69.22	±	3.66	±	2.44	0.270	81.8	45.21	±	3.04	±	2.04
0.36-0.42	0.392	67.2	64.27	±	3.66	±	2.95	0.329	82.1	40.54	±	2.96	±	2.38
0.42-0.50	0.352	66.6	45.70	\pm	2.65	±	2.30	0.463	81.7	31.26	\pm	2.20	±	1.95
0.50-0.60	0.549	66.6	33.60	±	2.02	±	2.19	0.545	82.0	21.34	\pm	1.68	±	1.86
0.60-0.72	0.660	66.8	21.17	±	1.46	±	1.88	0.661	81.1	10.93	\pm	1.04	±	1.17
0.72-0.90	0.797	66.3	9.61	±	0.78	±	1.18	0.798	81.7	3.85	±	0.47	±	0.57
0.90-1.25	1.038	65.6	1.56	\pm	0.18	\pm	0.30	1.014	81.9	0.50	\pm	0.08	\pm	0.13
0.50 1.20	1.020	00.0	$90 < \theta$				0.00	1.01	01.7	$105 < \theta$				0.15
	/m \	$\langle \theta \rangle$	90 < 0		$\frac{\sigma}{\sigma/dpd\Omega}$	<u> </u>		/m \	$\langle \theta \rangle$	100 < 6		$\frac{2\sigma}{\sigma} / \mathrm{d}p \mathrm{d}\Omega$)	
p _T 0.13-0.16	$\langle p_{\rm T} \rangle$ 0.147	97.8	163.49	±	14.66	±	28.29	$\langle p_{\rm T} \rangle$ 0.140	111.8	168.89	±	65.18	±	9.44
0.15-0.16	0.147	98.0	105.49	土	6.00	±	5.07	0.140	111.6	87.64	±	4.72	土	3.72
0.10-0.20	0.179	97.8	85.95	±	5.32	±	4.24	0.179	113.8	49.07	±	3.35	±	2.13
0.20-0.24 0.24-0.30	0.220	97.8	52.39	± ±	3.25	士	2.14	0.218	113.8	32.89	± ±	2.28	土	1.68
0.24-0.30	0.269	97.3	31.34	±	2.60	土	1.81	0.269	113.4	19.31	±	1.71	土	1.08
0.30-0.30	0.331	96.6	25.13	土	2.00	土	1.68	0.328	113.4	16.80	±	1.65	土	1.49
0.30-0.42	0.391	90.0	23.13	土	1.88	土	1.89	0.389	111.9	9.02	±	1.03	土	1.49
0.42-0.30	0.439	96.9	11.39	土	1.13	土	1.89	0.437	111.9	3.59	±	0.51	土	0.55
0.50-0.60	0.548	96.9	5.11	±	0.67	土	0.78	0.551		0.55	±	0.31	±	0.33
0.60-0.72	0.808	96.8	0.93	± ±	0.67	士	0.78	0.630	111.4 109.9	0.55	± ±	0.17	土	0.12
0.72-0.90	0.808	93.8	0.93	土	0.22	±	0.21	0.770	109.9	0.13	工	0.04	上	0.03
0.70-1.43	0.770	/5.0	0.10		0.03		0.04	Ц		l				

Table A.6: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^+ + Cu $\to \pi^-$ + X interactions with +3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1			$20 < \theta$	9 < 3	30					$30 < \theta$	< 40	<u>) </u>		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		ď	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.115	24.8	159.43	±	12.24	\pm	17.20	0.115	34.9	144.77	±	10.72	±	12.50
0.13-0.16	0.145	24.7	131.14	\pm	9.31	\pm	9.03	0.145	35.4	117.09	\pm	8.29	\pm	8.22
0.16-0.20	0.179	24.6	145.75	\pm	8.28	\pm	8.40	0.179	34.8	122.57	\pm	7.07	\pm	7.14
0.20-0.24	0.219	25.2	131.80	\pm	7.82	\pm	6.49	0.219	34.9	124.90	\pm	7.46	\pm	6.48
0.24-0.30	0.267	25.2	125.20	\pm	6.12	\pm	4.96	0.267	34.8	107.95	\pm	5.62	\pm	4.30
0.30-0.36	0.327	25.2	92.77	\pm	5.26	\pm	3.51	0.326	35.0	92.05	\pm	5.09	\pm	3.45
0.36-0.42	0.384	25.0	68.47	\pm	4.47	\pm	2.73	0.385	34.8	68.10	\pm	4.46	\pm	2.71
0.42-0.50	0.452	25.0	46.60	\pm	3.24	\pm	2.21	0.454	35.0	49.06	\pm	3.23	\pm	2.26
0.50-0.60	0.540	25.6	25.06	\pm	2.15	\pm	1.60	0.539	34.8	29.94	\pm	2.26	\pm	1.82
0.60-0.72	0.643	25.6	12.23	\pm	1.33	\pm	1.06	0.646	34.7	15.23	\pm	1.55	\pm	1.28
0.72-0.90								0.782	35.3	7.20	\pm	0.88	\pm	0.82
		<u> </u>	$40 < \theta$) / 5	50				<u> </u>	$50 < \theta$				
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$	10 \ 0		$\frac{\partial \sigma}{\partial \sigma} = \frac{\partial \sigma}{\partial \rho}$)		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$	00 \ 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2	
0.10-0.13	0.114	44.8	133.81	±	10.63	±	11.39	\P1'/	(0)		- u	o / apa.		
0.10-0.13	0.114	45.1	114.24	\pm	8.38	\pm	7.86	0.144	55.0	115.33	\pm	8.87	\pm	7.96
0.15-0.10	0.143	44.7	114.48	±	6.87	\pm	6.78	0.144	55.3	88.83	±	6.27	±	5.09
0.10-0.20	0.179	44.9	103.59	\pm	6.69	\pm	5.44	0.178	54.7	79.01	±	5.59	±	4.12
0.20-0.24	0.220	44.7	103.39	±	5.42	\pm	4.27	0.219	54.9	66.78	±	4.29	±	2.88
0.24-0.30	0.207	44.8	76.65	±	4.81	\pm	3.22	0.209	54.9	64.43	±	4.30	土	2.59
0.36-0.42	0.327	44.9	59.11	\pm	4.15	\pm	2.46	0.327	54.7	46.19	\pm	3.68	\pm	2.03
0.42-0.50	0.367	44.8	42.72	\pm	3.07	\pm	2.03	0.363	54.9	35.28	\pm	2.79	\pm	1.77
0.50-0.60	0.540	45.0	31.75	±	2.44	\pm	2.08	0.543	54.8	25.92	\pm	2.20	\pm	1.73
0.50-0.00	0.540	45.1	14.19	±	1.46	±	1.21	0.543	55.1	10.16	±	1.21	士	0.89
0.72-0.90	0.781	45.0	5.19	±	0.71	±	0.61	0.048	55.2	4.54	±	0.66	±	0.89
0.72-0.90	0.761	45.0	3.19		0.71		0.01	1.028	54.5	0.81	±	0.00	±	0.33
0.70 1.23			CO < () / '	75			1.020	34.3					0.10
	(nm)	/θ\	$60 < \theta$)				$75 < \theta$	< 90	0		0.10
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	\langle \theta \rangle \text{\theta} \ran		ď	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		7 92	$\langle p_{ m T} angle$	$\langle \theta \rangle$	$75 < \theta$	< 90	$\frac{0}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	Ω	
p _T 0.13-0.16	0.145	67.7	118.69	d ²	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.90}$	\pm	7.92 4.57	$\langle p_{\mathrm{T}} \rangle$ 0.146	(θ) 82.3	$75 < \theta$ 102.80	< 90 d ² ±	$\frac{0}{2\sigma/\mathrm{d}p\mathrm{d}\Omega}$ 9.75	Ω ±	14.93
p _T 0.13–0.16 0.16–0.20	0.145 0.179	67.7 67.9	118.69 88.60	± ±	$\frac{2\sigma/dpd\Omega}{7.90}$ 5.03	± ±	4.57	$\langle p_{\rm T} \rangle$ 0.146 0.180	(θ) 82.3 82.0	$75 < \theta$ 102.80 87.99	< 90 d ² ± ±	$ \frac{0}{2\sigma/\mathrm{d}p\mathrm{d}\Omega} $ 9.75 5.48	Ω ± ±	14.93 4.83
<i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	0.145 0.179 0.218	67.7 67.9 67.2	118.69 88.60 82.34	# # #	$\frac{^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.90}$ 5.03 4.94	± ± ±	4.57 4.11	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217	(θ) 82.3 82.0 82.1	$75 < \theta$ 102.80 87.99 60.77	< 90 d ² ± ± ±	0 2σ/dpdΩ 9.75 5.48 4.13	Ω ± ± ±	14.93 4.83 2.77
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.179 0.218 0.269	67.7 67.9 67.2 67.2	118.69 88.60 82.34 57.77	± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.90}$ 5.03 4.94 3.31	± ± ± ±	4.57 4.11 2.43	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267	⟨θ⟩ 82.3 82.0 82.1 82.0	$75 < \theta$ 102.80 87.99 60.77 47.72	< 90 d ² ± ± ± ± ± ±	9.75 5.48 4.13 3.04	Ω ± ± ± ±	14.93 4.83 2.77 2.19
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	0.145 0.179 0.218 0.269 0.326	67.7 67.9 67.2 67.2 67.0	118.69 88.60 82.34 57.77 45.02	d ² ± ± ± ± ± ±	$\frac{2\sigma/dpd\Omega}{7.90}$ 5.03 4.94 3.31 3.00	± ± ± ± ±	4.57 4.11 2.43 1.90	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267 0.327	$\langle \theta \rangle$ 82.3 82.0 82.1 82.0 81.9	75 < θ 102.80 87.99 60.77 47.72 30.25	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{0}{2\sigma/dpd\Omega}$ 9.75 5.48 4.13 3.04 2.52	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.179 0.218 0.269 0.326 0.388	67.7 67.9 67.2 67.2 67.0 66.7	118.69 88.60 82.34 57.77 45.02 39.86	# # # # # # #	$\frac{2\sigma/dpds}{7.90}$ 5.03 4.94 3.31 3.00 2.84	± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267 0.327 0.385	⟨θ⟩ 82.3 82.0 82.1 82.0 81.9 82.2	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ 2\sigma/\mathrm{d}p\mathrm{d}S\\ 9.75\\ 5.48\\ 4.13\\ 3.04\\ 2.52\\ 2.30\\ \end{array}$	Ω ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.179 0.218 0.269 0.326 0.388 0.455	67.7 67.9 67.2 67.2 67.0 66.7 67.4	118.69 88.60 82.34 57.77 45.02 39.86 31.94	± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpds}{7.90}$ $\frac{7.90}{5.03}$ $\frac{4.94}{3.31}$ $\frac{3.00}{2.84}$ $\frac{2.24}$	± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267 0.327 0.385 0.454	⟨θ⟩ 82.3 82.0 82.1 82.0 81.9 82.2 81.6	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{9.75}$ 5.48 4.13 3.04 2.52 2.30 1.81	10 ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2	118.69 88.60 82.34 57.77 45.02 39.86 31.94 17.74	d ² ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpds}{7.90}$ $\frac{7.90}{5.03}$ $\frac{4.94}{3.31}$ $\frac{3.00}{2.84}$ $\frac{2.24}{1.48}$	± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267 0.327 0.385 0.454 0.543	(θ) 82.3 82.0 82.1 82.0 81.9 82.2 81.6 81.7	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpds}{9.75}$ 5.48 4.13 3.04 2.52 2.30 1.81 1.20	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540 0.645	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0	118.69 88.60 82.34 57.77 45.02 39.86 31.94 17.74 7.96	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.90 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92	± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267 0.327 0.385 0.454 0.543 0.648	(θ) 82.3 82.0 82.1 82.0 81.9 82.2 81.6 81.7 82.1	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ \end{array}$	10 ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540 0.645 0.790	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6	118.69 88.60 82.34 57.77 45.02 39.86 31.94 17.74 7.96 3.23	d ² ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma}{dpd0}$ 7.90 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46	± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ 81.8 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.75 5.48 4.13 3.04 2.52 2.30 1.81 1.20 0.67 0.29	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540 0.645	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0	118.69 88.60 82.34 57.77 45.02 39.86 31.94 17.74 7.96 3.23 0.66	d' ± ± ± ± ± ± ± ± ±	7.90 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46 0.12	± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81	$\langle p_{\rm T} \rangle$ 0.146 0.180 0.217 0.267 0.327 0.385 0.454 0.543 0.648	(θ) 82.3 82.0 82.1 82.0 81.9 82.2 81.6 81.7 82.1	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \end{array}$	10 ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540 0.645 0.790 0.982	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1	118.69 88.60 82.34 57.77 45.02 39.86 31.94 17.74 7.96 3.23	d ² ± ± ± ± ± ± ± ± = ± = ± =	7.90 7.90 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46 0.12	± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \end{array}$	(θ) 82.3 82.0 82.1 82.0 81.9 82.2 81.6 81.7 82.1 81.8 82.1	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± < 12 d = 12	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540 0.645 0.790 0.982	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± d' d'	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.90}$ $\frac{7.90}{5.03}$ $\frac{4.94}{3.31}$ $\frac{3.00}{3.00}$ $\frac{2.84}{2.24}$ $\frac{2.24}{1.48}$ $\frac{0.92}{0.46}$ $\frac{0.12}{0.5}$	± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.3 82.0 82.1 82.0 81.9 82.2 81.6 81.7 82.1 81.8 82.1	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$		$\begin{array}{c} 0 \\ \hline 0 \\ \hline 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \end{array}$	π ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31 0.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.179 0.218 0.269 0.326 0.388 0.455 0.540 0.645 0.790 0.982 \langle p_T \rangle	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline 90 < \theta \\ \\ \end{array}$	d' ± ± ± ± ± ± ± d' d' ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.90 \\ 5.03 \\ 4.94 \\ 3.31 \\ 3.00 \\ 2.84 \\ 2.24 \\ 1.48 \\ 0.92 \\ 0.46 \\ 0.12 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ 81.8 \\ 82.1 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ \hline \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90		$\begin{array}{c} 0 \\ \hline 0 \\ 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31 0.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 (θ) 97.8 97.4	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 128.90 \\ 84.17 \\ \end{array}$	d' ± ± ± ± ± ± ± ± d' = ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.90 \\ 5.03 \\ 4.94 \\ 3.31 \\ 3.00 \\ 2.84 \\ 2.24 \\ 1.48 \\ 0.92 \\ 0.46 \\ 0.12 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ 81.8 \\ 82.1 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 114.3 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19		$\begin{array}{c} 0 \\ \hline 0 \\ 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \\ 25 \\ \hline \\ 6.01 \\ 3.89 \\ \end{array}$	1	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31 0.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 (θ) 97.8 97.4 97.2	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \\ 128.90 \\ 84.17 \\ 53.04 \\ \end{array}$	d' ± ± ± ± ± ± ± d' d' ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.90 \\ 5.03 \\ 4.94 \\ 3.31 \\ 3.00 \\ 2.84 \\ 2.24 \\ 1.48 \\ 0.92 \\ 0.46 \\ 0.12 \\ \hline 05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 12.22 \\ 5.45 \\ 3.99 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ 81.8 \\ 82.1 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 114.3 \\ 113.0 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \\ 25 \\ \hline 6.01 \\ 3.89 \\ 2.78 \\ \end{array}$	1	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31 0.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 97.8 97.8 97.4 97.2 96.8	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline 90 < \theta \\ \hline 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.90 \\ 5.03 \\ 4.94 \\ 3.31 \\ 3.00 \\ 2.84 \\ 2.24 \\ 1.48 \\ 0.92 \\ 0.46 \\ 0.12 \\ \hline 05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 12.22 \\ 5.45 \\ 3.99 \\ 2.58 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ 81.8 \\ 82.1 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 114.3 \\ 113.0 \\ 112.8 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 9.75 \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \\ 25 \\ \hline \hline 6.01 \\ 3.89 \\ 2.78 \\ 1.84 \\ \end{array}$	\(\frac{\pm}{\pmu}\) \(\frac{\pm}{\pmu}\) \(\pm\) \(\p	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31 0.14 4.99 2.75 1.76 1.33
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.325 \\ \hline \end{array} $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 97.8 97.8 97.4 97.2 96.8 97.5	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \hline \\ 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ 22.87 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.90 \\ 5.03 \\ 4.94 \\ 3.31 \\ 3.00 \\ 2.84 \\ 2.24 \\ 1.48 \\ 0.92 \\ 0.46 \\ 0.12 \\ \hline 0.5 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 12.22 \\ 5.45 \\ 3.99 \\ 2.58 \\ 2.14 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69 1.40	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ 0.329 \\ \end{array}$	$\langle \theta \rangle$ 82.3 82.0 82.1 82.0 81.9 82.2 81.6 81.7 82.1 81.8 114.4 114.3 113.0 112.8 114.6	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24 15.22	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0\\ \hline 0\\ 2\sigma/\mathrm{d}p\mathrm{d}9\\ 9.75\\ 5.48\\ 4.13\\ 3.04\\ 2.52\\ 2.30\\ 1.81\\ 1.20\\ 0.67\\ 0.29\\ 0.11\\ \hline \\ 25\\ \sigma/\mathrm{d}p\mathrm{d}5\\ \hline 6.01\\ 3.89\\ 2.78\\ 1.84\\ 1.52\\ \end{array}$		14.93 4.83 2.77 2.19 1.67 1.55 1.56 0.54 0.31 0.14 4.99 2.75 1.76 1.33 1.21
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.325 \\ 0.386 \\ \hline \end{array} $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.6 68.1 (θ) 97.8 97.8 97.4 97.2 96.8 97.5 97.3	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \hline \\ 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ 22.87 \\ 14.34 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.90 \\ 5.03 \\ 4.94 \\ 3.31 \\ 3.00 \\ 2.84 \\ 2.24 \\ 1.48 \\ 0.92 \\ 0.46 \\ 0.12 \\ \hline 0.5 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 12.22 \\ 5.45 \\ 3.99 \\ 2.58 \\ 2.14 \\ 1.72 \\ \end{array}$		4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69 1.40 1.12	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ 0.329 \\ 0.387 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 114.3 \\ 113.0 \\ 112.8 \\ 114.6 \\ 112.9 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24 15.22 11.69	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0\\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.75}\\ 5.48\\ 4.13\\ 3.04\\ 2.52\\ 2.30\\ 1.81\\ 1.20\\ 0.67\\ 0.29\\ 0.11\\ \hline \\ \frac{25}{2\sigma/\mathrm{d}p\mathrm{d}S}\\ 6.01\\ 3.89\\ 2.78\\ 1.84\\ 1.52\\ 1.35\\ \end{array}$	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.93 4.83 2.77 2.19 1.67 1.55 1.56 1.06 0.54 0.31 0.14 4.99 2.75 1.76 1.33 1.21 1.22
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.147 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.325 \\ 0.386 \\ 0.456 \\ \hline \end{array} $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 97.8 97.8 97.4 97.2 96.8 97.5 97.3 96.9	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \\ 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ 22.87 \\ 14.34 \\ 11.44 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.90}$ 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46 0.12 05 2 $\sigma/\mathrm{d}p\mathrm{d}S$ 12.22 5.45 3.99 2.58 2.14 1.72 1.37	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69 1.40 1.12 1.13	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.451 \\ \hline \end{array}$	$ \begin{array}{ c c c }\hline \langle\theta\rangle\\ & 82.3\\ & 82.0\\ & 82.1\\ & 82.0\\ & 81.9\\ & 82.2\\ & 81.6\\ & 81.7\\ & 82.1\\ \hline \\\hline & 82.1\\ & 14.4\\ & 114.3\\ & 113.0\\ & 112.8\\ & 114.6\\ & 112.9\\ & 112.8\\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24 15.22 11.69 4.48	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.75}\\ 5.48\\ 4.13\\ 3.04\\ 2.52\\ 2.30\\ 1.81\\ 1.20\\ 0.67\\ 0.29\\ 0.11\\ \hline 225\\ \frac{2\sigma}{\mathrm{d}p\mathrm{d}S}\\ 6.01\\ 3.89\\ 2.78\\ 1.84\\ 1.52\\ 1.35\\ 0.66\\ \end{array}$	\(\frac{\pma}{\pmu}\) \(\pm\)	14.93 4.83 2.77 2.19 1.67 1.55 1.56 0.54 0.31 0.14 4.99 2.75 1.76 1.33 1.21 1.22 0.60
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline \\ 0.147 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.325 \\ 0.386 \\ 0.456 \\ 0.544 \\ \hline \end{array} $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 97.8 97.4 97.2 96.8 97.5 97.3 96.9 96.6	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ 22.87 \\ 14.34 \\ 11.44 \\ 6.73 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.90}$ 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46 0.12 05 2 $\sigma/\mathrm{d}p\mathrm{d}S$ 12.22 5.45 3.99 2.58 2.14 1.72 1.37 0.87	1 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69 1.40 1.12 1.13 0.86	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.451 \\ 0.540 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ \hline \\ 82.1 \\ \hline \\ 114.4 \\ 114.3 \\ 113.0 \\ 112.8 \\ 114.6 \\ 112.9 \\ 112.8 \\ 113.0 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24 15.22 11.69 4.48 2.54	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.75} \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \\ \frac{25}{2\sigma/\mathrm{d}p\mathrm{d}S} \\ 6.01 \\ 3.89 \\ 2.78 \\ 1.84 \\ 1.52 \\ 1.35 \\ 0.66 \\ 0.53 \\ \end{array}$	\(\Omega\) \(\frac{\pm}{\pm}\) \(\pm\)	14.93 4.83 2.77 2.19 1.67 1.55 1.56 0.54 0.31 0.14 4.99 2.75 1.76 1.33 1.21 1.22 0.60 0.47
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.325 \\ 0.386 \\ 0.456 \\ 0.544 \\ 0.652 \\ \end{array} $	67.7 67.9 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 97.8 97.8 97.8 97.9 96.8 97.5 97.3 96.9 96.6	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ 22.87 \\ 14.34 \\ 11.44 \\ 6.73 \\ 2.60 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.90}$ 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46 0.12 05 2 $\sigma/\mathrm{d}p\mathrm{d}S$ 12.22 5.45 3.99 2.58 2.14 1.72 1.37 0.87 0.49	1	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69 1.40 1.12 1.13 0.86 0.47	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.451 \\ \hline \end{array}$	$ \begin{array}{ c c c }\hline \langle\theta\rangle\\ & 82.3\\ & 82.0\\ & 82.1\\ & 82.0\\ & 81.9\\ & 82.2\\ & 81.6\\ & 81.7\\ & 82.1\\ \hline \\\hline & 82.1\\ & 14.4\\ & 114.3\\ & 113.0\\ & 112.8\\ & 114.6\\ & 112.9\\ & 112.8\\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24 15.22 11.69 4.48	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.75}\\ 5.48\\ 4.13\\ 3.04\\ 2.52\\ 2.30\\ 1.81\\ 1.20\\ 0.67\\ 0.29\\ 0.11\\ \hline 225\\ \frac{2\sigma}{\mathrm{d}p\mathrm{d}S}\\ 6.01\\ 3.89\\ 2.78\\ 1.84\\ 1.52\\ 1.35\\ 0.66\\ \end{array}$	\(\frac{\pma}{\pmu}\) \(\pm\)	14.93 4.83 2.77 2.19 1.67 1.55 1.56 0.54 0.31 0.14 4.99 2.75 1.76 1.33 1.21 1.22 0.60
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.218 \\ 0.269 \\ 0.326 \\ 0.388 \\ 0.455 \\ 0.540 \\ 0.645 \\ 0.790 \\ 0.982 \\ \hline \\ \hline \\ 0.147 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.325 \\ 0.386 \\ 0.456 \\ 0.544 \\ \hline \end{array} $	67.7 67.9 67.2 67.2 67.0 66.7 67.4 67.2 67.0 67.6 68.1 97.8 97.4 97.2 96.8 97.5 97.3 96.9 96.6	$\begin{array}{c} 118.69 \\ 88.60 \\ 82.34 \\ 57.77 \\ 45.02 \\ 39.86 \\ 31.94 \\ 17.74 \\ 7.96 \\ 3.23 \\ 0.66 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 128.90 \\ 84.17 \\ 53.04 \\ 32.84 \\ 22.87 \\ 14.34 \\ 11.44 \\ 6.73 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.90}$ 5.03 4.94 3.31 3.00 2.84 2.24 1.48 0.92 0.46 0.12 05 2 $\sigma/\mathrm{d}p\mathrm{d}S$ 12.22 5.45 3.99 2.58 2.14 1.72 1.37 0.87	1 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.57 4.11 2.43 1.90 1.97 1.85 1.30 0.81 0.42 0.14 24.30 4.60 2.50 1.69 1.40 1.12 1.13 0.86	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.217 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.454 \\ 0.543 \\ 0.648 \\ 0.774 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.177 \\ 0.217 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.451 \\ 0.540 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.3 \\ 82.0 \\ 82.1 \\ 82.0 \\ 81.9 \\ 82.2 \\ 81.6 \\ 81.7 \\ 82.1 \\ \hline \\ 82.1 \\ \hline \\ 114.4 \\ 114.3 \\ 113.0 \\ 112.8 \\ 114.6 \\ 112.9 \\ 112.8 \\ 113.0 \\ \end{array} $	$75 < \theta$ 102.80 87.99 60.77 47.72 30.25 24.83 21.73 11.18 4.33 1.71 0.47 $105 < \theta$ 87.90 60.19 34.05 22.24 15.22 11.69 4.48 2.54	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.75} \\ 5.48 \\ 4.13 \\ 3.04 \\ 2.52 \\ 2.30 \\ 1.81 \\ 1.20 \\ 0.67 \\ 0.29 \\ 0.11 \\ \hline \\ \frac{25}{2\sigma/\mathrm{d}p\mathrm{d}S} \\ 6.01 \\ 3.89 \\ 2.78 \\ 1.84 \\ 1.52 \\ 1.35 \\ 0.66 \\ 0.53 \\ \end{array}$	\(\Omega\) \(\frac{\pm}{\pm}\) \(\pm\)	14.93 4.83 2.77 2.19 1.67 1.55 1.56 0.54 0.31 0.14 4.99 2.75 1.76 1.33 1.21 1.22 0.60 0.47

Table A.7: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^- + Cu \to p + X interactions with -3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.20-0.24	0.219	25.2	372.39	\pm	7.97	\pm	20.22							
0.24-0.30	0.267	25.3	318.53	\pm	5.72	\pm	15.16	0.269	35.0	377.71	\pm	6.36	\pm	16.73
0.30-0.36	0.326	25.3	276.93	\pm	5.34	\pm	11.32	0.326	35.1	343.56	\pm	5.83	\pm	12.92
0.36-0.42	0.384	25.2	212.26	\pm	4.59	\pm	7.61	0.385	35.1	260.18	\pm	5.03	\pm	8.41
0.42-0.50	0.452	25.3	164.01	\pm	3.50	\pm	5.26	0.451	35.2	219.72	\pm		\pm	6.24
0.50-0.60	0.538	25.4	112.87	\pm	2.55	\pm	3.67	0.537	35.2	151.30	\pm		\pm	4.42
0.60-0.72	0.641	25.4	68.44	\pm	1.84	\pm	2.87	0.642	35.3	95.74	\pm	2.19	\pm	3.73
0.72-0.90								0.778	35.3	49.01	\pm	1.25	\pm	2.77
			$40 < \theta$							$50 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.30-0.36	0.327	45.1	351.58	±	5.81	±	11.44							
0.36-0.42	0.386	45.1	300.18	\pm	5.39	\pm	8.58	0.386	55.1	309.80	\pm		\pm	8.99
0.42-0.50	0.454	45.1	243.08	\pm	4.24	\pm	6.55	0.454	55.0	247.15	\pm	4.21	\pm	6.87
0.50-0.60	0.541	45.1	175.84	\pm	3.24	\pm	5.27	0.541	55.1	186.11	\pm	3.32	\pm	6.20
0.60-0.72	0.647	45.1	112.94	\pm	2.38	\pm	4.45	0.645	55.1	115.01	\pm		\pm	5.07
0.72-0.90	0.787	45.1	59.28	\pm	1.40	\pm	3.37	0.785	55.0	62.33	\pm		\pm	3.87
0.90-1.25	1.011	45.1	15.77	\pm	0.47	\pm	1.47	1.013	55.1	16.74	\pm	0.49	±	1.65
			$60 < \theta$							$75 < \theta$	< 90)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.50-0.60	0.540	67.5	174.34	\pm	2.54	\pm	6.35							
0.60-0.72	0.645	67.3	104.21	\pm	1.83	\pm	5.60	0.644	81.9	73.30	\pm		\pm	5.19
0.72-0.90	0.783	67.2	51.14	\pm	1.04	\pm	4.14	0.784	81.7	31.40	\pm		\pm	3.10
0.90-1.25	1.010	67.0	12.75	\pm	0.34	\pm	1.72	1.004	81.4	6.79	±	0.24	±	1.06
			$90 < \theta$		-					$105 < \theta$	-	-		
$p_{ m T}$	$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.42-0.50								0.454	112.6	129.81	\pm		±	6.97
0.50-0.60								0.536	113.0	44.76	\pm		\pm	4.17
0.60-0.72	0.643	97.1	44.38	\pm	1.14	\pm	3.97	0.639	112.7	17.75	\pm		\pm	2.50
0.72-0.90	0.781	96.8	16.93	\pm	0.58	\pm	1.94	0.772	112.4	4.98	\pm		\pm	1.05
0.90-1.25	0.995	95.8	2.65	\pm	0.14	\pm	0.47	1.005	111.7	0.54	\pm	0.05	\pm	0.19

Table A.8: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^- + Cu $\to \pi^+$ + X interactions with -3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	25.1	105.80	±	5.24	±	7.84	0.115	35.0	106.42	±	5.05	土	8.09
0.13-0.16	0.145	24.8	140.10	\pm	5.75	\pm	8.95	0.145	35.0	123.12	\pm	5.18	\pm	7.51
0.16-0.20	0.179	25.0	148.23	\pm	4.96	\pm	7.91	0.179	34.9	129.96	\pm	4.42	\pm	6.59
0.20-0.24	0.219	25.1	157.18	\pm	4.95	\pm	6.94	0.219	34.7	141.06	\pm	4.65	\pm	6.28
0.24-0.30	0.268	25.0	146.13	\pm	3.88	\pm	5.32	0.268	34.8	125.60	\pm	3.56	\pm	4.50
0.30-0.36	0.326	25.2	119.20	\pm	3.53	\pm	4.07	0.325	34.8	113.31	\pm	3.39	\pm	3.62
0.36-0.42	0.383	25.0	93.15	\pm	3.04	\pm	3.02	0.384	34.8	80.79	\pm	2.82	\pm	2.55
0.42-0.50	0.451	25.2	63.08	\pm	2.17	\pm	2.57	0.452	34.9	59.91	\pm	2.12	\pm	2.24
0.50-0.60	0.539	25.2	35.05	\pm	1.36	\pm	1.90	0.538	35.1	36.54	\pm	1.43	\pm	1.79
0.60-0.72	0.639	25.3	18.21	\pm	0.85	\pm	1.46	0.643	34.9	21.46	\pm	0.95	\pm	1.56
0.72-0.90								0.778	34.8	9.95	\pm	0.50	\pm	1.14
			$40 < \theta$	<u> </u>	<u> </u>			1		$50 < \theta$				
no	/nm\	$\langle \theta \rangle$	40 < 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}z}$	0		$\langle p_{ m T} angle$	$\langle \theta \rangle$	30 < 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}}$	0	
0.10-0.13	$\langle p_{\rm T} \rangle$ 0.115	44.8	96.41	±	$\frac{o_7 dpd}{5.08}$	±	7.46	\P'I'/	\0/		u	o/apa	2.6	
0.10-0.13	0.113	45.0	103.25	土	4.63	土	6.27	0.145	55.3	104.00		4.93	- 1	6.51
	0.143	44.8	!		4.03	土	5.76	0.143	54.7	99.98	± ±	3.82	±	5.06
0.16-0.20	0.179	44.8	110.53 104.71	± ±	3.90	土			54.7	99.98	土	3.63	± ±	3.99
0.20-0.24	I		1		3.12		4.65	0.218			± ±			
0.24-0.30	0.268	45.0	97.87	±		±	3.55	0.268	54.7	79.72		2.80	±	2.91
0.30-0.36	0.327	44.9	84.84	±	2.91	±	2.73	0.327	54.7	61.67	±	2.45	±	2.01
0.36-0.42	0.386	44.7	65.54	±	2.59	±	2.20	0.387	54.7	61.15	±	2.56	±	2.52
0.42-0.50	0.454	44.7	49.65	±	1.94	±	1.85	0.454	54.6	42.25	±	1.81	±	1.74
0.50-0.60	0.540	44.9	35.95	±	1.47	±	1.79	0.538	54.8	26.59	±	1.26	±	1.38
0.60-0.72	0.649	44.6	17.56	±	0.89	±	1.19	0.645	54.8	15.22	±	0.87	±	1.13
0.72-0.90	0.784	44.3	7.00	\pm	0.42	\pm	0.72	0.780	55.0	6.39	±	0.42	±	0.66
0.90–1.25								1.012	54.6	1.40	±	0.11	±	0.25
		//0\	$60 < \theta$							$75 < \theta$	< 90)		0.25
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$			$\langle p_{ m T} angle$	$\langle heta angle$	$75 < \theta$	< 90 d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
p _T 0.13-0.16	0.145	67.5	98.99	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{4.24}$	\pm	6.42	$\langle p_{\mathrm{T}} \rangle$ 0.146	⟨θ⟩ 81.7	$75 < \theta$ 94.91	< 90 d ² ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41}$	Ω ±	14.59
p _T 0.13-0.16 0.16-0.20	0.145 0.179	67.5 67.6	98.99 92.98	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{4.24}$ 3.11	± ±	4.60	$\langle p_{\rm T} \rangle$ 0.146 0.179	(θ) 81.7 82.3	$75 < \theta$ 94.91 82.17	< 90 d ² ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41}$ 3.13	Ω ± ±	14.59 4.37
p _T 0.13-0.16 0.16-0.20 0.20-0.24	0.145 0.179 0.219	67.5 67.6 67.2	98.99 92.98 78.45	d ² ± ± ± ±	$\frac{\sigma/dpd}{4.24}$ 3.11 2.77	± ± ±	4.60 3.29	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218	(θ) 81.7 82.3 82.2	$75 < \theta$ 94.91 82.17 62.24	< 90 d ² ± ± ±	$\frac{\sigma/dpd}{\sigma/41}$ 9.41 3.13 2.50	Ω ± ± ±	14.59 4.37 2.54
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.179 0.219 0.267	67.5 67.6 67.2 67.0	98.99 92.98 78.45 64.43	# # # #	$\frac{\sigma/dpd}{4.24}$ 3.11 2.77 2.09	± ± ±	4.60 3.29 2.42	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267	$\langle \theta \rangle$ 81.7 82.3 82.2 82.2	$75 < \theta$ 94.91 82.17 62.24 49.44	< 90 d ² ± ± ± ±	$\frac{\sigma/dpd}{9.41}$ 3.13 2.50 1.86	Ω ± ± ± ±	14.59 4.37 2.54 1.94
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	0.145 0.179 0.219 0.267 0.327	67.5 67.6 67.2 67.0 66.8	98.99 92.98 78.45 64.43 52.80	d ² ± ± ± ± ± ±	$ \frac{\sigma/dpd}{4.24} $ 3.11 2.77 2.09 1.92	± ± ± ±	4.60 3.29 2.42 1.97	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327	$\langle \theta \rangle$ 81.7 82.3 82.2 82.2 81.8	75 < θ 94.91 82.17 62.24 49.44 36.23	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd}{\sigma/dpd} $ 9.41 3.13 2.50 1.86 1.62	Ω ± ± ± ±	14.59 4.37 2.54 1.94 1.63
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42	0.145 0.179 0.219 0.267 0.327 0.385	67.5 67.6 67.2 67.0 66.8 67.1	98.99 92.98 78.45 64.43 52.80 43.43	d ² ± ± ± ± ± ±	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78	± ± ± ± ±	4.60 3.29 2.42 1.97 1.96	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384	(θ) 81.7 82.3 82.2 82.2 81.8 82.0	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81	< 90 d ² ± ± ± ± ± ±	$\frac{\sigma/dpd}{\sigma/dpd}$ 9.41 3.13 2.50 1.86 1.62 1.43	Ω ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.145 0.179 0.219 0.267 0.327 0.385 0.453	67.5 67.6 67.2 67.0 66.8 67.1 66.9	98.99 92.98 78.45 64.43 52.80 43.43 28.76	### ### ### ### ### ### ### ### ### ##	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22	± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454	$\langle \theta \rangle$ 81.7 82.3 82.2 82.2 81.8 82.0 81.8	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.41 3.13 2.50 1.86 1.62 1.43 1.04	Ω ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8	98.99 92.98 78.45 64.43 52.80 43.43 28.76 21.29	d ² ± ± ± ± ± ± ± ± ±	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94	± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454 0.539	(θ) 81.7 82.3 82.2 82.2 81.8 82.0 81.8 81.9	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} \sigma/\mathrm{d}p\mathrm{d} \\ 9.41 \\ 3.13 \\ 2.50 \\ 1.86 \\ 1.62 \\ 1.43 \\ 1.04 \\ 0.70 \\ \end{array}$	Ω ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540 0.646	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9	98.99 92.98 78.45 64.43 52.80 43.43 28.76 21.29 11.17	d ² ± ± ± ± ± ± ± ± ± ±	7/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61	± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454 0.539 0.645	(θ) 81.7 82.3 82.2 82.2 81.8 82.0 81.8 81.9 81.8	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd}{9.41} $ 3.13 2.50 1.86 1.62 1.43 1.04 0.70 0.45	Ω ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540 0.646 0.784	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9	98.99 92.98 78.45 64.43 52.80 43.43 28.76 21.29 11.17 4.49	d ² ± ± ± ± ± ± ± ± ± ±	7/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30	± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454 0.539 0.645 0.778	(θ) 81.7 82.3 82.2 82.2 81.8 82.0 81.8 81.9 81.8	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ \hline 9.41 \\ 3.13 \\ 2.50 \\ 1.86 \\ 1.62 \\ 1.43 \\ 1.04 \\ 0.70 \\ 0.45 \\ 0.21 \\ \end{array}$	Ω ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540 0.646	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9	98.99 92.98 78.45 64.43 52.80 43.43 28.76 21.29 11.17 4.49 0.80	d ² ± ± ± ± ± ± ± ± ± ± ±	7/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07	± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454 0.539 0.645	(θ) 81.7 82.3 82.2 82.2 81.8 82.0 81.8 81.9 81.8	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma}{dpd}$ 9.41 3.13 2.50 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03	Ω ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540 0.646 0.784	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7	98.99 92.98 78.45 64.43 52.80 43.43 28.76 21.29 11.17 4.49	d ² ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07	± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454 0.539 0.645 0.778	(\(\theta\)) 81.7 82.3 82.2 82.2 81.8 82.0 81.8 81.9 81.8 81.7 81.7	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57	\[\frac{\delta^2}{d^2} \] \[\pm \\ \pm	σ/dpd 9.41 3.13 2.50 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03	Ω ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540 0.646 0.784	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \\ 90 < \theta \\ \end{array}$	$ \begin{array}{c} d^2 \\ \pm \\ \hline d^2 \end{array} $	7/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$\langle p_{\rm T} \rangle$ 0.146 0.179 0.218 0.267 0.327 0.384 0.454 0.539 0.645 0.778	$\langle \theta \rangle$ 81.7 82.3 82.2 82.2 81.8 82.0 81.8 81.9 81.8 81.7 81.7	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ 3.13 2.50 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 $ \frac{\sigma}{\sigma}$	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \\ 90 < \theta \\ \\ \hline \\ 87.19 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 05 σ/dpd 5.80	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$ \begin{array}{c c} \langle p_{\rm T} \rangle \\ \hline 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \hline \end{array} $	$ \begin{array}{c c} \langle \theta \rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.5 \\ \end{array} $	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ 3.13 2.50 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $	Ω ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 05 $\sigma/\text{d}p\text{d}$ 5.80 2.96	# # # # # # # # # # # # # # # # # # #	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$ \begin{array}{c c} \langle p_{\rm T} \rangle \\ \hline 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ \hline 0.145 \\ 0.178 \\ \end{array} $	$ \begin{array}{c} \langle \theta \rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ \end{array} $	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43 56.60		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{9.41}{3.13} $ $ \frac{2.50}{1.86} $ $ \frac{1.62}{1.43} $ $ \frac{1.04}{0.70} $ $ \frac{0.45}{0.21} $ $ \frac{0.03}{0.03} $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ \frac{3.19}{2.12} $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.219 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.5 66.7 (θ) 97.4 97.5 97.2	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \\ 90 < \theta \\ \\ \hline \\ 87.19 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 05 σ/dpd 5.80	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$ \begin{array}{c c} \langle p_{\rm T} \rangle \\ \hline 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \hline \end{array} $	$ \begin{array}{c c} \langle \theta \rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.5 \\ \end{array} $	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $ 2.12 1.71	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	$ \frac{\sigma/\text{d}p\text{d}}{4.24} $ 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 05 $ \frac{\sigma/\text{d}p\text{d}}{5.80} $ 2.96 2.53	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$ \begin{array}{c c} \langle p_{\rm T} \rangle \\ \hline 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ \hline 0.145 \\ 0.178 \\ \end{array} $	$ \begin{array}{c} \langle \theta \rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ \end{array} $	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43 56.60		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{9.41}{3.13} $ $ \frac{2.50}{1.86} $ $ \frac{1.62}{1.43} $ $ \frac{1.04}{0.70} $ $ \frac{0.45}{0.21} $ $ \frac{0.03}{0.03} $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ \frac{3.19}{2.12} $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.219 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.5 66.7 (θ) 97.4 97.5 97.2	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ 57.59 \\ \end{array}$		$ \frac{\sigma/\text{d}p\text{d}}{4.24} $ 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 05 $ \frac{\sigma/\text{d}p\text{d}}{5.80} $ 2.96 2.53	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.218 \\ \end{array}$	$\begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ 114.5 \\ 114.5 \\ 114.2 \\ 114.2 \\ \end{array}$	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43 56.60 37.01		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $ 2.12 1.71	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.219 \\ 0.267 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.5 66.7 (θ) 97.4 97.5 97.2 97.2	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ 57.59 \\ 37.02 \\ \end{array}$		$ \frac{\sigma/\text{d}p\text{d}}{4.24} $ 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 05 $ \frac{\sigma/\text{d}p\text{d}}{5.80} $ 2.96 2.53 1.60	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.218 \\ 0.265 \\ \end{array}$	$\begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ 114.5 \\ 114.2 \\ 113.8 \\ \end{array}$	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43 56.60 37.01 21.91		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $ 2.12 1.71 1.08	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.326 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.5 66.7 (θ) 97.4 97.5 97.2 97.2	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ 57.59 \\ 37.02 \\ 23.28 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ $	σ/dpd 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 0.5 σ/dpd 5.80 2.96 2.53 1.60 1.29	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.218 \\ 0.265 \\ 0.325 \\ \hline \end{array}$	$ \begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ \hline \langle\theta\rangle \\ 114.5 \\ 114.2 \\ 113.8 \\ 113.8 \\ \end{array} $	$75 < \theta$ 94.91 82.17 62.24 49.44 36.23 27.81 20.30 12.25 6.05 2.57 0.26 $105 < \theta$ 73.43 56.60 37.01 21.91 14.09		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $ 2.12 1.71 1.08 0.85	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.5 66.7 97.4 97.5 97.2 97.2 97.2 96.8	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ 57.59 \\ 37.02 \\ 23.28 \\ 17.43 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 0.5 $\sigma/\text{d}p\text{d}$ 5.80 2.96 2.53 1.60 1.29 1.12	### ### ##############################	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16 10.33 3.50 2.62 1.38 1.17 1.10	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.218 \\ 0.265 \\ 0.325 \\ 0.387 \\ \hline \end{array}$	$ \begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ 81.7 \\ \hline \\ 114.5 \\ 114.2 \\ 113.8 \\ 113.8 \\ 114.5 \\ \end{array} $	$\begin{array}{c} 75 < \theta \\ \\ 94.91 \\ 82.17 \\ 62.24 \\ 49.44 \\ 36.23 \\ 27.81 \\ 20.30 \\ 12.25 \\ 6.05 \\ 2.57 \\ 0.26 \\ \hline \end{array}$ $\begin{array}{c} 0.26 \\ \hline \end{array}$ $\begin{array}{c} 73.43 \\ 56.60 \\ 37.01 \\ 21.91 \\ 14.09 \\ 9.80 \\ \end{array}$		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $ 2.12 1.71 1.08 0.85 0.73	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \hline \\ \begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.326 \\ 0.385 \\ 0.454 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7 97.4 97.5 97.2 97.2 97.2 96.8 96.9	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ 57.59 \\ 37.02 \\ 23.28 \\ 17.43 \\ 14.02 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 0.5 $\sigma/\text{d}p\text{d}$ 5.80 2.96 2.53 1.29 1.12 0.85	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16 10.33 3.50 2.62 1.38 1.17 1.10	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ & \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.218 \\ 0.265 \\ 0.325 \\ 0.387 \\ 0.454 \\ \hline \end{array}$	$ \begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ \hline \\ 114.5 \\ 114.2 \\ 113.8 \\ 113.8 \\ 114.5 \\ 114.2 \\ \end{array} $	$\begin{array}{c} 75 < \theta \\ \\ 94.91 \\ 82.17 \\ 62.24 \\ 49.44 \\ 36.23 \\ 27.81 \\ 20.30 \\ 12.25 \\ 6.05 \\ 2.57 \\ 0.26 \\ \end{array}$ $\begin{array}{c} 0.26 \\ \\ \hline 73.43 \\ 56.60 \\ 37.01 \\ 21.91 \\ 14.09 \\ 9.80 \\ 4.46 \\ \end{array}$		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.19} $ 2.12 1.71 1.08 0.85 0.73 0.41	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07 3.84 2.18 1.41 1.02 0.89 0.84 0.48
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.385 \\ 0.453 \\ 0.540 \\ 0.646 \\ 0.784 \\ 1.013 \\ \hline \\ \hline \\ \begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.326 \\ 0.385 \\ 0.454 \\ 0.542 \\ \end{array} $	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.5 66.7 97.4 97.5 97.2 97.2 97.2 96.8 96.9 97.1	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 73.19 \\ 57.59 \\ 37.02 \\ 23.28 \\ 17.43 \\ 14.02 \\ 7.10 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.24 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 0.5 $\sigma/\text{d}p\text{d}$ 5.80 2.96 2.53 1.60 1.29 1.12 0.85 0.55	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16 10.33 3.50 2.62 1.38 1.17 1.10 1.12	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.218 \\ 0.265 \\ 0.325 \\ 0.387 \\ 0.454 \\ 0.542 \\ \end{array}$	$ \begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ 81.7 \\ \hline \\ 114.5 \\ 114.2 \\ 113.8 \\ 114.5 \\ 114.2 \\ 112.4 \\ \end{array} $	$\begin{array}{c} 75 < \theta \\ \hline \\ 94.91 \\ 82.17 \\ 62.24 \\ 49.44 \\ 36.23 \\ 27.81 \\ 20.30 \\ 12.25 \\ 6.05 \\ 2.57 \\ 0.26 \\ \hline \\ \hline \\ 105 < \theta \\ \hline \\ 73.43 \\ 56.60 \\ 37.01 \\ 21.91 \\ 14.09 \\ 9.80 \\ 4.46 \\ 2.74 \\ \hline \end{array}$	$ \begin{array}{c} < 90 \\ \hline d^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $\frac{3.19}{2.12} $ 2.171 1.08 0.85 0.73 0.41 0.28	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07 3.84 2.18 1.41 1.02 0.89 0.84 0.48
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.179 0.219 0.267 0.327 0.385 0.453 0.540 0.646 0.784 1.013 (p _T) 0.146 0.178 0.219 0.267 0.326 0.385 0.454 0.542 0.643	67.5 67.6 67.2 67.0 66.8 67.1 66.9 66.8 66.9 66.5 66.7 97.4 97.5 97.2 97.2 97.2 96.8 96.9 97.1 96.5	$\begin{array}{c} 98.99 \\ 92.98 \\ 78.45 \\ 64.43 \\ 52.80 \\ 43.43 \\ 28.76 \\ 21.29 \\ 11.17 \\ 4.49 \\ 0.80 \\ \hline \\ 90 < \theta \\ \hline \\ 87.19 \\ 57.59 \\ 37.02 \\ 23.28 \\ 17.43 \\ 14.02 \\ 7.10 \\ 2.40 \\ \end{array}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{4.24} $ 3.11 2.77 2.09 1.92 1.78 1.22 0.94 0.61 0.30 0.07 $ \frac{\sigma}{\mathrm{d}p\mathrm{d}} $ 5.80 2.96 2.53 1.60 1.29 1.12 0.85 0.55 0.25	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.60 3.29 2.42 1.97 1.96 1.35 1.33 0.96 0.54 0.16 10.33 3.50 2.62 1.38 1.17 1.10 1.12 0.77 0.36	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.384 \\ 0.454 \\ 0.539 \\ 0.645 \\ 0.778 \\ 1.002 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.218 \\ 0.265 \\ 0.325 \\ 0.387 \\ 0.454 \\ 0.542 \\ 0.650 \\ \hline \end{array}$	$ \begin{array}{c} \langle\theta\rangle \\ 81.7 \\ 82.3 \\ 82.2 \\ 82.2 \\ 81.8 \\ 82.0 \\ 81.8 \\ 81.7 \\ \hline \\ 81.7 \\ \hline \\ 114.5 \\ 114.5 \\ 114.2 \\ 113.8 \\ 113.8 \\ 114.5 \\ 114.2 \\ 112.4 \\ 112.4 \\ \end{array} $	$\begin{array}{c} 75 < \theta \\ \hline \\ 94.91 \\ 82.17 \\ 62.24 \\ 49.44 \\ 36.23 \\ 27.81 \\ 20.30 \\ 12.25 \\ 6.05 \\ 2.57 \\ 0.26 \\ \hline \\ 105 < \theta \\ \hline \\ 73.43 \\ 56.60 \\ 37.01 \\ 21.91 \\ 14.09 \\ 9.80 \\ 4.46 \\ 2.74 \\ 0.71 \\ \hline \end{array}$	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{9.41} $ $ \frac{3.13}{2.50} $ 1.86 1.62 1.43 1.04 0.70 0.45 0.21 0.03 $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ \frac{3.19}{2.12}$ 1.71 1.08 0.85 0.73 0.41 0.28 0.12	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.59 4.37 2.54 1.94 1.63 1.44 1.19 0.93 0.63 0.38 0.07 3.84 2.18 1.41 1.02 0.89 0.84 0.48 0.40 0.15

Table A.9: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^- + Cu $\to \pi^-$ + X interactions with -3.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

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$90 < \theta < 105$ $105 < \theta < 125$
p_{T} $\langle p_{\mathrm{T}} \rangle$ $\langle \theta \rangle$ $\mathrm{d}^2 \sigma / \mathrm{d} p \mathrm{d} \Omega$ $\langle p_{\mathrm{T}} \rangle$ $\langle \theta \rangle$ $\mathrm{d}^2 \sigma / \mathrm{d} p \mathrm{d} \Omega$
$oxed{0.13-0.16} oxed{0.144} oxed{96.3} oxed{209.56} \pm 44.67 \pm 22.60 oxed{0.145} oxed{114.4} oxed{119.68} \pm 4.32 \pm 5.88$
$ \mid 0.16 - 0.20 \mid \mid 0.180 \mid 97.6 \mid 121.00 \pm 3.92 \pm 5.82 \mid \mid 0.179 \mid 114.2 \mid 89.94 \pm 2.81 \pm 3.29 $
$ \mid 0.20-0.24 \mid \mid 0.220 \mid 97.2 \mid 83.19 \pm 3.05 \pm 3.31 \mid \mid 0.219 \mid 114.1 \mid 60.79 \pm 2.22 \pm 2.23 $
$ \mid 0.24-0.30 \mid \mid 0.269 \mid 97.1 \mid 58.23 \pm 2.07 \pm 2.38 \mid \mid 0.268 \mid 113.3 \mid 31.97 \pm 1.32 \pm 1.54 $
$ \mid 0.30-0.36 \mid \mid 0.331 \mid 97.2 \mid 40.39 \pm 1.71 \pm 2.00 \mid 0.331 \mid 113.8 \mid 21.91 \pm 1.10 \pm 1.51 $
0.36-0.42 0.391 97.0 29.21 ± 1.47 ± 1.93 0.391 113.4 12.23 ± 0.82 ± 1.12
$ 0.42 \ 0.50 \ 0.461 \ 0.72 \ 10.92 \ \perp 10.5 \ \perp 1.74 \ 0.457 \ 112.1 \ 0.92 \ \perp 0.59 \ 1.05 \$
$ \mid 0.42 - 0.50 \mid \mid 0.461 \mid 97.2 \mid 19.83 \pm 1.05 \pm 1.74 \mid \mid 0.457 \mid 113.1 \mid 8.83 \pm 0.58 \pm 1.05 $
$ \begin{vmatrix} 0.50-0.60 \end{vmatrix} \begin{vmatrix} 0.549 \end{vmatrix} \begin{vmatrix} 97.0 \end{vmatrix} \begin{vmatrix} 10.94 \end{vmatrix} \pm \begin{vmatrix} 0.69 \end{vmatrix} \pm \begin{vmatrix} 1.27 \end{vmatrix} \begin{vmatrix} 0.553 \end{vmatrix} \begin{vmatrix} 112.5 \end{vmatrix} \begin{vmatrix} 2.57 \end{vmatrix} \pm \begin{vmatrix} 0.27 \end{vmatrix} \pm \begin{vmatrix} 0.41 \end{vmatrix} $
$ \begin{vmatrix} 0.50 - 0.60 & 0.549 & 97.0 & 10.94 & \pm & 0.69 & \pm & 1.27 & 0.553 & 112.5 & 2.57 & \pm & 0.27 & \pm & 0.41 \\ 0.60 - 0.72 & 0.659 & 96.6 & 4.43 & \pm & 0.38 & \pm & 0.69 & 0.658 & 112.1 & 0.83 & \pm & 0.12 & \pm & 0.19 \\ \end{vmatrix} $
$ \begin{vmatrix} 0.50-0.60 \end{vmatrix} \begin{vmatrix} 0.549 \end{vmatrix} \begin{vmatrix} 97.0 \end{vmatrix} \begin{vmatrix} 10.94 \end{vmatrix} \pm \begin{vmatrix} 0.69 \end{vmatrix} \pm \begin{vmatrix} 1.27 \end{vmatrix} \begin{vmatrix} 0.553 \end{vmatrix} \begin{vmatrix} 112.5 \end{vmatrix} \begin{vmatrix} 2.57 \end{vmatrix} \pm \begin{vmatrix} 0.27 \end{vmatrix} \pm \begin{vmatrix} 0.41 \end{vmatrix} $

Table A.10: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in p + Cu \rightarrow p + X interactions with +5.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \ell$	$\theta < 3$	60					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.220	25.1	490.74	±	10.91	\pm	26.52							
0.24-0.30	0.270	25.3	473.49	\pm	8.32	\pm	22.37	0.271	34.9	504.43	\pm	8.78	\pm	22.18
0.30-0.36	0.330	25.2	402.84	\pm	7.59	\pm	16.31	0.331	35.0	448.88	\pm	7.95	\pm	16.70
0.36-0.42	0.390	25.2	352.60	\pm	7.19	\pm	12.41	0.391	35.1	399.77	\pm	7.52	\pm	12.73
0.42-0.50	0.461	25.2	285.95	\pm	5.48	\pm	8.92	0.461	35.1	312.22	\pm	5.69	\pm	8.69
0.50-0.60	0.550	25.2	215.47	\pm	4.24	\pm	6.75	0.551	35.1	237.47	\pm	4.45	\pm	6.78
0.60-0.72	0.660	25.1	146.15	\pm	3.12	\pm	5.74	0.661	35.1	171.37	\pm	3.49	\pm	6.42
0.72-0.90								0.807	35.0	95.40	\pm	2.11	±	5.31
			$40 < \ell$	$\theta < 5$	0					$50 < \theta$	< 60)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.330	45.2	501.22	±	8.42	\pm	15.84							
0.36-0.42	0.391	45.2	430.50	\pm	7.76	\pm	12.08	0.390	55.2	434.74	\pm	7.56	\pm	13.03
0.42-0.50	0.461	45.1	342.99	\pm	6.00	\pm	9.06	0.460	55.1	352.50	\pm	6.02	\pm	9.60
0.50-0.60	0.551	45.1	253.87	\pm	4.61	\pm	7.49	0.549	55.0	253.05	\pm	4.62	\pm	8.33
0.60-0.72	0.660	45.1	178.75	\pm	3.59	\pm	6.95	0.658	54.9	167.22	\pm	3.48	\pm	7.32
0.72-0.90	0.805	44.9	97.23	\pm	2.16	\pm	5.48	0.806	55.0	86.96	\pm	2.04	\pm	5.33
0.90-1.25	1.044	44.7	34.56	\pm	0.90	\pm	3.12	1.035	54.9	24.14	\pm	0.75	±	2.30
			$60 < \ell$	$\theta < 7$	' 5					$75 < \theta$	< 90)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.549	67.4	231.42	±	3.47	\pm	8.73							
0.60-0.72	0.658	67.1	140.47	\pm	2.54	\pm	7.52	0.655	81.7	83.57	\pm	1.89	\pm	5.99
0.72-0.90	0.802	66.9	68.25	\pm	1.46	\pm	5.51	0.799	81.6	38.02	\pm	1.07	\pm	3.76
0.90-1.25	1.038	66.9	15.65	±	0.47	\pm	2.07	1.022	81.6	7.30	\pm	0.32	±	1.12
			$90 < \theta$	< 10	05					$105 < \theta$	< 12	25		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.459	113.3	103.14	±	2.22	±	5.81
0.50-0.60								0.544	112.7	45.24	\pm	1.29	\pm	4.24
0.60-0.72	0.656	96.8	45.98	\pm	1.38	\pm	4.17	0.655	112.3	14.57	\pm	0.67	\pm	2.07
0.72-0.90	0.796	96.4	15.97	\pm	0.68	\pm	1.84	0.790	111.9	3.99	\pm	0.27	\pm	0.85
0.90-1.25	1.020	96.0	2.47	±	0.17	±	0.43	1.032	112.1	0.32	±	0.04	±	0.12

Table A.11: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in p + Cu $\to \pi^+$ + X interactions with +5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 40	0		
p_{T}	$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	24.9	168.02	\pm	8.06	\pm	12.38	0.116	34.7	154.11	±	7.72	\pm	11.60
0.13-0.16	0.145	24.8	213.31	\pm	8.53	\pm	13.01	0.145	34.9	155.03	\pm	6.89	\pm	9.31
0.16-0.20	0.180	24.9	235.27	\pm	7.38	\pm	11.72	0.181	34.6	175.62	\pm	6.24	\pm	8.78
0.20-0.24	0.220	24.9	236.54	\pm	7.31	\pm	10.27	0.221	34.6	182.94	\pm	6.29	\pm	7.88
0.24-0.30	0.270	24.8	205.89	\pm	5.59	\pm	7.78	0.270	34.7	171.78	\pm	5.00	\pm	6.11
0.30-0.36	0.331	25.0	158.63	\pm	4.75	\pm	5.09	0.330	34.8	132.77	\pm	4.38	\pm	4.19
0.36-0.42	0.389	24.8	130.63	\pm	4.37	\pm	4.83	0.390	34.8	102.95	\pm	3.83	\pm	3.24
0.42-0.50	0.459	24.8	81.83	\pm	2.84	\pm	3.07	0.460	34.8	78.47	\pm	2.94	\pm	3.09
0.50-0.60	0.549	25.0	58.04	\pm	2.08	\pm	3.14	0.549	34.9	45.56	\pm	1.83	\pm	2.25
0.60-0.72	0.659	25.0	28.54	\pm	1.19	\pm	2.27	0.657	34.9	28.40	\pm	1.26	\pm	2.07
0.72-0.90								0.800	34.8	12.61	\pm	0.62	\pm	1.42
			$40 < \theta$	< 5	0					$50 < \theta$	< 60	0		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\frac{1}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	Ω	
0.10-0.13	0.115	44.9	142.31	±	7.64	±	10.92	\I 1 /	(-)			, <u>r</u>		
0.13-0.16	0.146	45.0	157.21	\pm	7.24	\pm	9.53	0.145	55.1	135.24	\pm	6.75	\pm	8.41
0.16-0.20	0.180	44.9	145.79	\pm	5.68	\pm	7.44	0.179	54.8	130.27	\pm	5.46	\pm	6.63
0.20-0.24	0.221	45.0	132.37	\pm	5.38	\pm	5.86	0.220	54.9	103.40	\pm	4.71	\pm	4.61
0.24-0.30	0.270	44.8	127.43	\pm	4.30	\pm	4.59	0.270	54.6	100.18	\pm	3.78	\pm	3.64
0.30-0.36	0.330	45.0	94.37	\pm	3.64	\pm	3.02	0.331	54.7	80.22	\pm	3.47	\pm	2.84
0.36-0.42	0.389	44.7	82.49	\pm	3.49	\pm	2.68	0.390	54.7	72.35	\pm	3.30	\pm	2.65
0.42-0.50	0.459	44.7	61.33	\pm	2.63	\pm	2.39	0.461	54.7	48.12	\pm	2.30	\pm	1.95
0.50-0.60	0.548	44.6	37.58	\pm	1.72	\pm	1.82	0.547	54.8	30.76	\pm	1.62	\pm	1.64
0.60-0.72	0.658	44.5	22.20	\pm	1.16	\pm	1.51	0.663	54.7	17.15	\pm	1.07	\pm	1.27
0.72-0.90	0.803	44.6	11.58	\pm	0.66	\pm	1.20	0.797	54.7	9.26	\pm	0.63	\pm	0.99
0.90-1.25								1.029	54.5	2.55	\pm	0.20	\pm	0.42
			$60 < \theta$	< 7	5				'	$75 < \theta$	< 90	0		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.13-0.16	0.146	67.4	125.83	\pm	5.86	\pm	8.32	0.146	82.1	107.90	\pm	7.87	\pm	10.69
0.16-0.20	0.179	67.3	111.66	\pm	4.09	\pm	5.53	0.180	82.1	103.54	\pm	4.22	\pm	5.15
0.20-0.24	0.221	67.3	100.87	\pm	3.93	\pm	4.61	0.218	82.0	83.94	\pm	3.63	\pm	3.67
0.24-0.30	0.269	67.0	80.90	\pm	2.80	\pm	2.81	0.268	82.0	57.99	\pm	2.43	\pm	2.31
0.30-0.36	0.329	66.7	57.37	\pm	2.43	\pm	2.17	0.330	81.3	39.50	\pm	2.03	\pm	1.77
0.36-0.42	0.391	66.8	46.63	\pm	2.15	\pm	1.75	0.388	81.9	24.98	\pm	1.54	\pm	1.13
0.42-0.50	0.461	66.8	32.27	\pm	1.55	\pm	1.53	0.458	81.7	19.95	\pm	1.23	\pm	1.18
0.50-0.60	0.549	66.4	21.10	\pm	1.08	\pm	1.31	0.548	81.5	12.35	\pm	0.88	\pm	0.99
0.60-0.72	0.659	66.1	10.59	\pm	0.69	\pm	0.91	0.662	81.8	6.13	\pm	0.55	\pm	0.65
0.72-0.90	0.805	66.3	4.95	\pm	0.37	\pm	0.60	0.794	81.1	2.31	±	0.25	\pm	0.34
0.90–1.25	1.050	66.0	0.96	±	0.09	±	0.18	1.038	81.7	0.26	±	0.05	±	0.06
			$90 < \theta$							$105 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$			$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.13-0.16	0.148	98.1	114.96	\pm	7.63	\pm	10.19	0.143	112.6	134.23	\pm	29.57	\pm	7.91
0.16-0.20	0.179	97.3	99.94	\pm	4.22	\pm	4.69	0.180	113.9	67.10	\pm	2.84	\pm	2.62
0.20-0.24	0.219	97.2	66.67	\pm	3.21	\pm	2.56	0.219	113.9	46.85	±	2.33	\pm	1.90
l	11 0 267	96.8	40.12	\pm	2.01	\pm	1.53	0.267	113.2	21.81	±	1.28	\pm	1.04
0.24-0.30	0.267	I			1.66	\pm	1.37	0.329	114.0	12.46	\pm	0.97	\pm	0.81
0.30-0.36	0.329	97.7	26.36	\pm									-	
0.30-0.36 0.36-0.42	0.329 0.389	97.7 97.0	14.47	\pm	1.21	\pm	0.92	0.390	113.6	9.19	±	0.84	±	0.80
0.30-0.36 0.36-0.42 0.42-0.50	0.329 0.389 0.460	97.7 97.0 96.6	14.47 13.01	± ±	1.21 1.03	$_{\pm}$	1.12	0.453	113.3	3.57	\pm	0.43	\pm	0.41
0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.329 0.389 0.460 0.545	97.7 97.0 96.6 96.9	14.47 13.01 5.83	± ± ±	1.21 1.03 0.59	± ± ±	1.12 0.64	0.453 0.552	113.3 113.4	3.57 1.34	$_{\pm }^{\pm }$	0.43 0.23	$_{\pm}$	0.41 0.22
0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.329 0.389 0.460 0.545 0.659	97.7 97.0 96.6 96.9 96.4	14.47 13.01 5.83 1.87	± ± ±	1.21 1.03 0.59 0.28	± ± ±	1.12 0.64 0.28	0.453	113.3	3.57	\pm	0.43	\pm	0.41
0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.329 0.389 0.460 0.545	97.7 97.0 96.6 96.9	14.47 13.01 5.83	± ± ±	1.21 1.03 0.59	± ± ±	1.12 0.64	0.453 0.552	113.3 113.4	3.57 1.34	$_{\pm }^{\pm }$	0.43 0.23	$_{\pm}$	0.41 0.22

Table A.12: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in p + Cu $\to \pi^-$ + X interactions with +5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	25.2	156.73	±	8.05	\pm	13.14	0.115	35.1	135.97	±	6.96	\pm	10.65
0.13-0.16	0.145	25.0	177.63	\pm	7.80	\pm	11.44	0.145	35.0	167.15	\pm	7.25	\pm	10.65
0.16-0.20	0.180	25.0	172.82	\pm	6.35	\pm	8.92	0.179	34.8	138.91	\pm	5.52	\pm	7.28
0.20-0.24	0.219	24.9	165.03	\pm	6.18	\pm	7.46	0.219	35.0	159.01	\pm	5.96	\pm	7.07
0.24-0.30	0.268	24.9	132.03	\pm	4.42	\pm	4.76	0.268	35.0	119.79	\pm	4.14	\pm	4.33
0.30-0.36	0.327	25.0	95.54	\pm	3.77	\pm	3.18	0.327	34.8	103.32	\pm	3.90	\pm	3.43
0.36-0.42	0.387	25.1	67.89	\pm	3.15	\pm	2.39	0.388	35.1	67.31	\pm	3.10	\pm	2.32
0.42-0.50	0.453	25.3	47.57	\pm	2.36	\pm	2.16	0.454	34.8	44.71	\pm	2.21	\pm	1.81
0.50-0.60	0.544	25.7	25.16	\pm	1.47	\pm	1.45	0.542	35.1	26.99	\pm	1.56	\pm	1.49
0.60-0.72	0.652	25.7	13.37	\pm	1.00	\pm	1.06	0.649	35.1	15.84	\pm	1.06	\pm	1.22
0.72-0.90								0.791	34.6	6.27	\pm	0.55	\pm	0.67
			$40 < \theta$	<u> </u>	<u> </u>					$50 < \theta$				
ne	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	40 < 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}z}$	0		$\langle p_{ m T} angle$	$\langle \theta \rangle$	00 < 0	\ d2	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}}$	0	
0.10-0.13	0.115	45.1	135.22	±	7.14	±	10.78	\PT/	\0/		u	o/apa	2.6	
0.10=0.13	0.113	45.1	126.53				8.04	0.145	55.1	119.67	\pm	6.24		7.68
0.13-0.16	0.145	45.0	120.33	± ±	6.25 5.16	± ±	6.45	0.143	55.1 55.0	116.92	± ±	6.24 5.16	土	6.19
0.16-0.20	0.179	45.0	118.67	土	5.16	土	5.62	0.178	55.0 55.0	94.42	± ±	4.39	土	4.42
0.20-0.24 0.24-0.30	0.219	45.0	102.18	± ±	3.92	士	3.91	0.218	55.0 54.6	76.34	± ±	3.25	士	2.88
0.24-0.30	0.209	44.8	79.22	±	3.37	土	2.62	0.267	54.8	67.56	т ±	3.20	土	2.46
0.36-0.42	0.327	44.9	63.75	±	3.10	土	2.34	0.327	54.6	46.03	土	2.61	土	1.75
0.30-0.42	0.388	44.9	43.82	±	2.18	±	1.84	0.388	55.0	34.42	±	1.96	土	1.73
0.42-0.50	0.434	44.9	24.61	±	1.48	土	1.64	0.437	54.7	24.50	土	1.50	土	1.54
	1			±		±		1		9.99	±			
0.60-0.72	0.647	44.5	12.03	± ±	0.92		0.97	0.650	54.7	l	± ±	0.84	±	0.84
0.72-0.90	0.788	44.9	6.53	土	0.60	±	0.76	0.786 0.995	54.7 54.4	4.68 1.09	± ±	0.48	土	0.54
0.90–1.25								0.993	34.4			0.17		0.20
	/ \	/0\	$60 < \theta$					/	/0\	$75 < \theta$				
p _T 0.13–0.16	$\langle p_{\rm T} \rangle$	$\langle \theta \rangle$	124.02		$\sigma/\mathrm{d}p\mathrm{d}$		7.54	$\langle p_{\rm T} \rangle$	$\langle \theta \rangle$	126.20		$\frac{\sigma/\mathrm{d}p\mathrm{d}}{7.51}$		16.04
0.13-0.16		67.3	124.03	± ±	5.52 3.94	±	7.54	0.147 0.178	82.3	126.38 97.39	± ±	7.51	±	16.04
	0.145			+	3 94	\pm	4.99		82.1	9/39	-	4.10	\pm	4.67
0.16-0.20	0.178	67.1	103.49			1			01.0	l			1	
0.16-0.20 0.20-0.24	0.178 0.220	67.1 67.4	78.09	\pm	3.24	±	3.31	0.219	81.8	73.23	\pm	3.33	±	3.06
0.16-0.20 0.20-0.24 0.24-0.30	0.178 0.220 0.267	67.1 67.4 67.5	78.09 67.22	$_{\pm}$	3.24 2.59	\pm	3.31 2.57	0.219 0.267	81.9	73.23 53.41	$_{\pm }^{\pm }$	3.33 2.31	\pm	2.06
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.178 0.220 0.267 0.327	67.1 67.4 67.5 67.0	78.09 67.22 46.82	± ± ±	3.24 2.59 2.18	± ±	3.31 2.57 1.76	0.219 0.267 0.328	81.9 81.8	73.23 53.41 34.57	± ± ±	3.33 2.31 1.89	± ±	2.06 1.54
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.178 0.220 0.267 0.327 0.387	67.1 67.4 67.5 67.0 66.5	78.09 67.22 46.82 36.70	± ± ±	3.24 2.59 2.18 1.87	± ± ±	3.31 2.57 1.76 1.46	0.219 0.267 0.328 0.384	81.9 81.8 81.5	73.23 53.41 34.57 21.87	± ± ±	3.33 2.31 1.89 1.52	± ± ±	2.06 1.54 1.19
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.178 0.220 0.267 0.327 0.387 0.455	67.1 67.4 67.5 67.0 66.5 66.7	78.09 67.22 46.82 36.70 26.62	± ± ± ± ±	3.24 2.59 2.18 1.87 1.43	± ± ±	3.31 2.57 1.76 1.46 1.38	0.219 0.267 0.328 0.384 0.454	81.9 81.8 81.5 81.3	73.23 53.41 34.57 21.87 14.48	± ± ± ±	3.33 2.31 1.89 1.52 1.06	± ± ±	2.06 1.54 1.19 0.95
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.178 0.220 0.267 0.327 0.387 0.455 0.544	67.1 67.4 67.5 67.0 66.5 66.7 66.8	78.09 67.22 46.82 36.70 26.62 13.48	± ± ± ± ± ±	3.24 2.59 2.18 1.87 1.43 0.89	± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91	0.219 0.267 0.328 0.384 0.454 0.541	81.9 81.8 81.5 81.3 81.6	73.23 53.41 34.57 21.87 14.48 7.62	± ± ± ± ±	3.33 2.31 1.89 1.52 1.06 0.69	± ± ± ±	2.06 1.54 1.19 0.95 0.67
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.178 0.220 0.267 0.327 0.387 0.455 0.544 0.649	67.1 67.4 67.5 67.0 66.5 66.7 66.8	78.09 67.22 46.82 36.70 26.62 13.48 7.98	± ± ± ± ± ± ±	3.24 2.59 2.18 1.87 1.43 0.89 0.63	± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73	0.219 0.267 0.328 0.384 0.454 0.541 0.649	81.9 81.8 81.5 81.3 81.6 81.9	73.23 53.41 34.57 21.87 14.48 7.62 3.56	± ± ± ± ± ± ±	3.33 2.31 1.89 1.52 1.06 0.69 0.42	± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.178 0.220 0.267 0.327 0.387 0.455 0.544 0.649 0.778	67.1 67.4 67.5 67.0 66.5 66.7 66.8 66.8	78.09 67.22 46.82 36.70 26.62 13.48 7.98 3.09	± ± ± ± ± ± ± ±	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.33	± ± ± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40	0.219 0.267 0.328 0.384 0.454 0.541 0.649 0.787	81.9 81.8 81.5 81.3 81.6 81.9 81.3	73.23 53.41 34.57 21.87 14.48 7.62 3.56 1.05	± ± ± ± ± ± ±	3.33 2.31 1.89 1.52 1.06 0.69 0.42 0.19	± ± ± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42 0.17
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.178 0.220 0.267 0.327 0.387 0.455 0.544 0.649	67.1 67.4 67.5 67.0 66.5 66.7 66.8	78.09 67.22 46.82 36.70 26.62 13.48 7.98 3.09 0.46	± ± ± ± ± ± ± ±	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.33 0.08	± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73	0.219 0.267 0.328 0.384 0.454 0.541 0.649	81.9 81.8 81.5 81.3 81.6 81.9	73.23 53.41 34.57 21.87 14.48 7.62 3.56 1.05 0.19	± ± ± ± ± ± ± ±	3.33 2.31 1.89 1.52 1.06 0.69 0.42 0.19 0.04	± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.178 0.220 0.267 0.327 0.387 0.455 0.544 0.649 0.778 1.015	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5	78.09 67.22 46.82 36.70 26.62 13.48 7.98 3.09	± ± ± ± ± ± ± ± = ± = ± = = < 10	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.33 0.08	± ± ± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40	0.219 0.267 0.328 0.384 0.454 0.541 0.649 0.787 1.054	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8	73.23 53.41 34.57 21.87 14.48 7.62 3.56 1.05	± ± ± ± ± ± ± ± = ±	3.33 2.31 1.89 1.52 1.06 0.69 0.42 0.19 0.04	± ± ± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42 0.17
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$egin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{ m T} \rangle \\ \hline \end{array}$	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5	78.09 67.22 46.82 36.70 26.62 13.48 7.98 3.09 0.46	$ \begin{array}{c} \pm \\ \hline < 10 \\ \text{d}^2 \end{array} $	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.33 0.08 0.63	± ± ± ± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09	0.219 0.267 0.328 0.384 0.454 0.541 0.649 0.787 1.054	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \end{array}$	$ \begin{array}{c} \pm \\ \hline < 12 \\ d^2 \end{array} $	3.33 2.31 1.89 1.52 1.06 0.69 0.42 0.19 0.04 σ/dpd	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 (θ)	$78.09 67.22 46.82 36.70 26.62 13.48 7.98 3.09 0.46 90 < \theta 132.88$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 10 \\ \hline $	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.33 0.08 0.5 $\sigma/\mathrm{d}p\mathrm{d}$ 8.42	######################################	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ \end{array} $	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ \end{array}$	$ \begin{array}{c} \pm \\ \hline & \frac{12}{d^2} \end{array} $	3.33 2.31 1.89 1.52 1.06 0.69 0.42 0.19 0.04 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.24	± ± ± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 (θ) 98.0 97.5	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 10 \\ \hline d^2 \\ \pm \\ \pm \end{array} $	$\begin{array}{c} 3.24 \\ 2.59 \\ 2.18 \\ 1.87 \\ 1.43 \\ 0.89 \\ 0.63 \\ 0.33 \\ 0.08 \\ \hline o/dpd \\ \hline 8.42 \\ 3.88 \\ \end{array}$	######################################	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09	0.219 0.267 0.328 0.384 0.454 0.541 0.649 0.787 1.054 $\langle p_{\rm T} \rangle$ 0.144 0.178	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 (θ) 114.2 114.0	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± <12 d ² ± ±	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ 0.04 \\ \hline \end{array}$	######################################	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 (θ) 98.0 97.5 97.0	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ \end{array}$	± ± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 3.24 \\ 2.59 \\ 2.18 \\ 1.87 \\ 1.43 \\ 0.89 \\ 0.63 \\ 0.08 \\ \hline 3.88 \\ 3.01 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09	0.219 0.267 0.328 0.384 0.454 0.541 0.649 0.787 1.054 $\langle p_{\rm T} \rangle$ 0.144 0.178 0.218	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 $\langle \theta \rangle$ 114.2 114.0 113.0	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \\ 89.78 \\ 62.34 \\ 34.29 \\ \end{array}$	± ± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ 0.04 \\ \hline \end{array}$	######################################	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 (ψ) 98.0 97.5 97.0 96.9	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ 36.45 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 10 \\ \hline d^2 \\ \pm \\ \pm$	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.08 0.5 0.7 0.63 0.08 0.8 0.8 0.8 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75	0.219 0.267 0.328 0.384 0.454 0.541 0.649 0.787 1.054 $\langle p_{\rm T} \rangle$ 0.144 0.178 0.218 0.266	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 $\langle \theta \rangle$ 114.2 114.0 113.0 113.7	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ 0.04 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.24 \\ 2.77 \\ 1.96 \\ 1.22 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.327 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 98.0 97.5 97.0 96.9 96.3	78.09 67.22 46.82 36.70 26.62 13.48 7.98 3.09 0.46 $90 < \theta$ 132.88 84.66 57.85 36.45 20.16	$\begin{array}{c} \pm \\ \pm $	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.08 0.5 0.7 0.63 3.01 1.99 1.44	### ### ##############################	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75 1.10	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.326 \\ \end{array} $	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 $\langle \theta \rangle$ 114.2 114.0 113.0 113.7 113.8	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ 11.84 \\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.33 2.31 1.89 1.52 1.06 0.69 0.42 0.19 0.04 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.24 2.77 1.96 1.22 0.95	######################################	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03 0.89
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.327 \\ 0.389 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 98.0 97.5 97.0 96.9 96.3 97.4	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ 36.45 \\ 20.16 \\ 14.00 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.33 0.08 0.5 $\sigma/\mathrm{d}p\mathrm{d}$ 8.42 3.88 3.01 1.99 1.44 1.17	### ### ##############################	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75 1.10 0.98	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.326 \\ 0.385 \\ \end{array} $	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 (θ) 114.2 114.0 113.0 113.7 113.8 112.7	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ 11.84 \\ 6.47 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.24 \\ 2.77 \\ 1.96 \\ 1.22 \\ 0.95 \\ 0.70 \\ \end{array}$	### ### ##############################	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03 0.89 0.65
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.327 \\ 0.389 \\ 0.454 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 98.0 97.5 97.0 96.9 96.3 97.4 96.7	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ 36.45 \\ 20.16 \\ 14.00 \\ 9.11 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.24 \\ 2.59 \\ 2.18 \\ 1.87 \\ 1.43 \\ 0.89 \\ 0.63 \\ 0.33 \\ 0.08 \\ \hline 0.10 \\ 1.10 \\ 1.17 \\ 0.86 \\ \end{array}$	# # # # # # # # # # # # # # # # # # #	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75 1.10 0.98 0.85	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.326 \\ 0.385 \\ 0.451 \\ \end{array} $	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 $\langle \theta \rangle$ 114.2 114.0 113.0 113.7 113.8 112.7 113.5	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ 11.84 \\ 6.47 \\ 3.19 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ \hline 0.04 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.24 \\ 2.77 \\ 1.96 \\ 1.22 \\ 0.95 \\ 0.70 \\ 0.43 \\ \end{array}$		2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03 0.89 0.65 0.42
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.327 \\ 0.389 \\ 0.454 \\ 0.541 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 66.8 67.6 66.5 98.0 97.5 97.0 96.9 96.3 97.4 96.7 96.5	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ 36.45 \\ 20.16 \\ 14.00 \\ 9.11 \\ 4.24 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.24 \\ 2.59 \\ 2.18 \\ 1.87 \\ 1.43 \\ 0.89 \\ 0.63 \\ 0.33 \\ 0.08 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 8.42 \\ 3.88 \\ 3.01 \\ 1.99 \\ 1.44 \\ 1.17 \\ 0.86 \\ 0.51 \\ \end{array}$	\(\frac{\pmu}{\pmu}\) \(\pm\)	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75 1.10 0.98 0.85 0.53	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.144 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.326 \\ 0.385 \\ 0.451 \\ 0.536 \\ \hline \end{array} $	$\begin{array}{c} 81.9 \\ 81.8 \\ 81.5 \\ 81.3 \\ 81.6 \\ 81.9 \\ 81.3 \\ 81.8 \\ \hline \\ \langle \theta \rangle \\ 114.2 \\ 114.0 \\ 113.0 \\ 113.7 \\ 113.8 \\ 112.7 \\ 113.5 \\ 111.7 \\ \end{array}$	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ 11.84 \\ 6.47 \\ 3.19 \\ 0.88 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ \hline 0.04 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.24 \\ 2.77 \\ 1.96 \\ 1.22 \\ 0.95 \\ 0.70 \\ 0.43 \\ 0.20 \\ \end{array}$	\(\frac{\pm}{\pm}\) \(\pm\) \(2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03 0.89 0.65 0.42 0.17
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.327 \\ 0.389 \\ 0.454 \\ 0.541 \\ 0.646 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 67.6 66.5 98.0 97.5 97.0 96.9 96.3 97.4 96.7 96.5 95.6	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ 36.45 \\ 20.16 \\ 14.00 \\ 9.11 \\ 4.24 \\ 1.40 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.24 2.59 2.18 1.87 1.43 0.89 0.63 0.08 0.05 σ/dpd 0.842	# # # # # # # # # # # # # # # # # # #	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75 1.10 0.98 0.85 0.53 0.25	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.326 \\ 0.385 \\ 0.451 \\ \end{array} $	81.9 81.8 81.5 81.3 81.6 81.9 81.3 81.8 $\langle \theta \rangle$ 114.2 114.0 113.0 113.7 113.8 112.7 113.5	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ 11.84 \\ 6.47 \\ 3.19 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ \hline 0.04 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.24 \\ 2.77 \\ 1.96 \\ 1.22 \\ 0.95 \\ 0.70 \\ 0.43 \\ \end{array}$	# # # # # # # # # # # # # # # # # # #	2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03 0.89 0.65 0.42
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.178 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.387 \\ 0.455 \\ 0.544 \\ 0.649 \\ 0.778 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.327 \\ 0.389 \\ 0.454 \\ 0.541 \\ \end{array} $	67.1 67.4 67.5 67.0 66.5 66.7 66.8 66.8 67.6 66.5 98.0 97.5 97.0 96.9 96.3 97.4 96.7 96.5	$\begin{array}{c} 78.09 \\ 67.22 \\ 46.82 \\ 36.70 \\ 26.62 \\ 13.48 \\ 7.98 \\ 3.09 \\ 0.46 \\ \hline \\ 90 < \theta \\ \hline \\ 132.88 \\ 84.66 \\ 57.85 \\ 36.45 \\ 20.16 \\ 14.00 \\ 9.11 \\ 4.24 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.24 \\ 2.59 \\ 2.18 \\ 1.87 \\ 1.43 \\ 0.89 \\ 0.63 \\ 0.33 \\ 0.08 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 8.42 \\ 3.88 \\ 3.01 \\ 1.99 \\ 1.44 \\ 1.17 \\ 0.86 \\ 0.51 \\ \end{array}$	\(\frac{\pmu}{\pmu}\) \(\pm\)	3.31 2.57 1.76 1.46 1.38 0.91 0.73 0.40 0.09 20.58 4.02 2.36 1.75 1.10 0.98 0.85 0.53	$ \begin{array}{c} 0.219 \\ 0.267 \\ 0.328 \\ 0.384 \\ 0.454 \\ 0.541 \\ 0.649 \\ 0.787 \\ 1.054 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.144 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.326 \\ 0.385 \\ 0.451 \\ 0.536 \\ \hline \end{array} $	$\begin{array}{c} 81.9 \\ 81.8 \\ 81.5 \\ 81.3 \\ 81.6 \\ 81.9 \\ 81.3 \\ 81.8 \\ \hline \\ \langle \theta \rangle \\ 114.2 \\ 114.0 \\ 113.0 \\ 113.7 \\ 113.8 \\ 112.7 \\ 113.5 \\ 111.7 \\ \end{array}$	$\begin{array}{c} 73.23 \\ 53.41 \\ 34.57 \\ 21.87 \\ 14.48 \\ 7.62 \\ 3.56 \\ 1.05 \\ 0.19 \\ \hline \\ 105 < \theta \\ \hline \\ 89.78 \\ 62.34 \\ 34.29 \\ 19.20 \\ 11.84 \\ 6.47 \\ 3.19 \\ 0.88 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.33 \\ 2.31 \\ 1.89 \\ 1.52 \\ 1.06 \\ 0.69 \\ 0.42 \\ 0.19 \\ \hline 0.04 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.24 \\ 2.77 \\ 1.96 \\ 1.22 \\ 0.95 \\ 0.70 \\ 0.43 \\ 0.20 \\ \end{array}$	\(\frac{\pm}{\pm}\) \(\pm\) \(2.06 1.54 1.19 0.95 0.67 0.42 0.17 0.07 4.64 2.47 1.49 1.03 0.89 0.65 0.42 0.17

Table A.13: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^+ + Cu \to p + X interactions with +5.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.221	25.3	487.58	±	9.85	±	26.98		, ,					
0.24-0.30	0.269	25.2	408.01	\pm	6.90	\pm	19.72	0.271	35.0	452.54	\pm	7.48	\pm	20.35
0.30-0.36	0.330	25.2	349.24	\pm	6.31	\pm	14.63	0.330	35.1	402.65	\pm	6.75	\pm	15.50
0.36-0.42	0.390	25.3	290.63	\pm	5.83	\pm	10.77	0.390	35.0	339.08	\pm	6.19	\pm	11.40
0.42-0.50	0.460	25.2	239.68	\pm	4.44	\pm	7.99	0.460	35.1	274.23	\pm	4.77	\pm	8.19
0.50-0.60	0.550	25.3	170.53	\pm	3.31	\pm	5.77	0.550	35.1	201.59	\pm	3.65	\pm	6.21
0.60-0.72	0.659	25.3	101.62	\pm	2.25	\pm	4.26	0.659	35.0	140.18	\pm	2.78	\pm	5.56
0.72-0.90								0.803	35.0	75.00	\pm	1.63	\pm	4.30
			$40 < \theta$	< 5	0					$50 < \theta$	< 60)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.330	45.2	445.65	\pm	7.09	\pm	14.71							
0.36-0.42	0.390	45.1	380.59	\pm	6.55	\pm	11.38	0.391	55.1	396.39	\pm	6.49	\pm	12.38
0.42-0.50	0.460	45.1	287.71	\pm	4.93	\pm	8.14	0.460	55.1	310.04	\pm	5.07	\pm	8.96
0.50-0.60	0.551	45.1	224.30	\pm	3.88	\pm	7.04	0.549	55.0	225.21	\pm	3.91	\pm	7.78
0.60-0.72	0.659	45.0	152.44	\pm	2.95	\pm	6.19	0.659	55.0	145.14	\pm	2.90	\pm	6.58
0.72-0.90	0.806	45.0	85.03	\pm	1.79	\pm	4.91	0.803	55.0	71.97	\pm	1.66	\pm	4.51
0.90–1.25	1.039	44.8	25.63	±	0.68	±	2.35	1.041	54.8	20.74	±	0.61	±	2.01
			$60 < \theta$							$75 < \theta$				
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.549	67.4	207.55	\pm	2.95	\pm	8.06							
0.60-0.72	0.658	67.3	123.97	\pm	2.14	\pm	6.75	0.657	81.8	85.67	\pm	1.72	\pm	6.21
0.72-0.90	0.804	67.1	58.63	\pm	1.21	\pm	4.78	0.801	81.7	34.74	\pm	0.92	\pm	3.47
0.90-1.25	1.037	66.8	14.07	\pm	0.40	\pm	1.87	1.032	81.8	7.14	\pm	0.28	±	1.11
			$90 < \theta$	< 10)5					$105 < \theta$	-	-		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.459	113.4	118.08	\pm	2.16	\pm	6.58
0.50-0.60								0.546	113.0	54.91	\pm	1.28	\pm	5.15
0.60-0.72	0.654	96.8	49.07	\pm	1.28	\pm	4.50	0.652	112.5	20.13	\pm	0.71	\pm	2.87
0.72-0.90	0.801	96.9	18.15	\pm	0.65	\pm	2.12	0.796	112.3	5.42	\pm	0.29	\pm	1.16
0.90-1.25	1.028	96.5	2.91	\pm	0.16	\pm	0.52	1.025	111.3	0.42	\pm	0.04	\pm	0.16

Table A.14: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^+ + Cu $\to \pi^+$ + X interactions with +5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \ell$							$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.116	24.7	183.45	±	7.39	\pm	13.86	0.116	35.1	200.03	±	7.79	±	15.35
0.13-0.16	0.146	24.8	254.15	\pm	8.26	\pm	16.05	0.145	34.8	187.99	\pm	6.75	\pm	11.70
0.16-0.20	0.181	24.7	278.40	\pm	7.09	\pm	14.21	0.181	34.7	236.11	\pm	6.48	\pm	12.20
0.20-0.24	0.220	24.8	330.01	\pm	7.68	\pm	14.77	0.220	34.7	240.76	\pm	6.43	\pm	10.72
0.24-0.30	0.271	24.9	301.66	\pm	6.04	\pm	11.68	0.270	34.8	238.51	±	5.26	\pm	8.73
0.30-0.36	0.331	24.7	253.97	\pm	5.38	\pm	8.34	0.330	34.8	205.73	\pm	4.89	\pm	6.71
0.36-0.42	0.391	24.8	219.70	±	5.15	\pm	8.33	0.391	34.8	171.46	±	4.44	±	5.54
0.42-0.50	0.460	24.8	162.14	\pm	3.66	±	6.15	0.460	34.9	141.22	±	3.57	±	5.66
	0.550	24.9	118.77	±	2.75		6.42	0.550		91.79	±	2.38	±	4.54
0.50-0.60						±			34.8					
0.60-0.72	0.659	24.9	64.48	±	1.74	±	5.10	0.659	34.8	53.17	±	1.59	±	3.86
0.72-0.90								0.804	34.6	27.75	±	0.89	±	3.12
			$40 < \ell$							$50 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d ²	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.116	45.0	167.14	\pm	7.34	\pm	13.22							
0.13-0.16	0.145	45.1	199.44	\pm	7.29	\pm	12.56	0.146	55.1	158.40	\pm	6.53	\pm	10.19
0.16-0.20	0.181	44.9	188.80	\pm	5.74	\pm	10.00	0.180	54.9	164.81	\pm	5.48	\pm	8.73
0.20-0.24	0.220	44.9	182.39	\pm	5.62	\pm	8.43	0.220	54.9	157.38	\pm	5.20	\pm	7.41
0.24-0.30	0.269	44.8	170.96	\pm	4.45	\pm	6.39	0.270	54.8	141.91	\pm	4.03	\pm	5.41
0.30-0.36	0.331	44.7	151.40	\pm	4.12	\pm	5.05	0.331	54.9	124.80	\pm	3.90	\pm	4.61
0.36-0.42	0.391	44.8	134.05	\pm	3.99	\pm	4.50	0.390	54.7	107.98	\pm	3.62	\pm	4.09
0.42-0.50	0.460	44.8	110.91	\pm	3.18	\pm	4.38	0.460	54.7	85.65	\pm	2.76	\pm	3.54
0.50-0.60	0.551	44.9	67.57	\pm	2.10	\pm	3.29	0.549	54.8	53.19	\pm	1.93	\pm	2.87
0.60-0.72	0.659	44.6	40.84	\pm	1.44	\pm	2.79	0.657	54.6	34.72	\pm	1.40	\pm	2.57
0.72-0.90	0.803	44.6	22.76	\pm	0.86	\pm	2.35	0.802	54.5	15.49	\pm	0.76	\pm	1.65
0.90–1.25	0.000			_	0.00		2.00	1.027	54.3	4.00	\pm	0.23	\pm	0.65
0.50 1.25			60 < 6) / 7	75			1.027	34.3					0.03
	$\langle p_{\rm T} \rangle$	$\langle \theta \rangle$	$60 < \theta$			Ω				$75 < \theta$	< 90)		0.03
$p_{ m T}$	$\langle p_{ m T} angle$	(θ) 67.5		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}9$		11 43	$\langle p_{ m T} angle$	$\langle heta angle$	$75 < \theta$	< 90 d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
p _T 0.13–0.16	0.145	67.5	163.71	d ²	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{6.08}$	±	11.43	$\langle p_{\mathrm{T}} \rangle$ 0.148	⟨θ⟩ 82.1	$75 < \theta$	< 90 d ² ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85}$	Ω ±	9.45
p _T 0.13-0.16 0.16-0.20	0.145 0.181	67.5 67.2	163.71 139.77	± ±	$\frac{2\sigma/dpd9}{6.08}$ 4.08	± ±	7.14	$\langle p_{\rm T} \rangle$ 0.148 0.180	(θ) 82.1 81.8	$75 < \theta$ 111.04 130.74	< 90 d ² ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85}$ 4.25	Ω ± ±	9.45 6.75
<i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	0.145 0.181 0.220	67.5 67.2 67.0	163.71 139.77 131.39	± ± ±	$\frac{2\sigma/dpd9}{6.08}$ $\frac{6.08}{4.08}$ $\frac{4.08}{4.00}$	± ± ±	7.14 6.25	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219	(θ) 82.1 81.8 82.3	$75 < \theta$ 111.04 130.74 107.99	< 90 d ² ± ± ±	$\frac{\sigma/dpd}{5.85}$ 4.25 3.68	Ω ± ± ±	9.45 6.75 5.00
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.181 0.220 0.269	67.5 67.2 67.0 67.1	163.71 139.77 131.39 110.47	± ± ± ±	$\frac{^{2}\sigma/\mathrm{d}p\mathrm{d}s}{6.08}$ $\frac{4.08}{4.00}$ $\frac{4.00}{2.92}$	± ± ±	7.14 6.25 4.04	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269	(θ) 82.1 81.8 82.3 82.1	$75 < \theta$ 111.04 130.74 107.99 77.70	< 90 d ² ± ± ± ± ±	$\frac{\sigma/dpd}{5.85}$ 4.25 3.68 2.52	Ω ± ± ±	9.45 6.75 5.00 3.28
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	0.145 0.181 0.220 0.269 0.329	67.5 67.2 67.0 67.1 66.9	163.71 139.77 131.39 110.47 86.06	# # # # # #	$\frac{^{2}\sigma/\mathrm{d}p\mathrm{d}9}{6.08}$ $\frac{4.08}{4.00}$ $\frac{4.00}{2.92}$ $\frac{2.67}{6.08}$	± ± ± ±	7.14 6.25 4.04 3.41	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329	$\langle \theta \rangle$ 82.1 81.8 82.3 82.1 81.8	75 < θ 111.04 130.74 107.99 77.70 57.15	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma}{dpd}$ 5.85 4.25 3.68 2.52 2.19	Ω ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69
P _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.181 0.220 0.269 0.329 0.390	67.5 67.2 67.0 67.1 66.9 66.9	163.71 139.77 131.39 110.47 86.06 68.00	d ² ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{6.08}$ $\frac{6.08}{4.08}$ $\frac{4.00}{2.92}$ $\frac{2.67}{2.33}$	± ± ± ± ±	7.14 6.25 4.04 3.41 2.67	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389	(θ) 82.1 81.8 82.3 82.1 81.8 81.9	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50	< 90 d ² ± ± ± ± ± ±	$\frac{\sigma/dpd}{5.85}$ 4.25 3.68 2.52 2.19 1.72	Ω ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.145 0.181 0.220 0.269 0.329 0.390 0.458	67.5 67.2 67.0 67.1 66.9 66.9 66.8	163.71 139.77 131.39 110.47 86.06 68.00 55.19	d ² ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{6.08}$ $\frac{4.08}{4.00}$ $\frac{4.00}{2.92}$ $\frac{2.67}{2.33}$ $\frac{1.83}{2.80}$	± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389 0.460	(θ) 82.1 81.8 82.3 82.1 81.8 81.9 81.6	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75	< 90 d ² ± ± ± ± ± ±	$ \frac{\sigma/dpd}{5.85} $ 5.85 4.25 3.68 2.52 2.19 1.72 1.39	Ω ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.181 0.220 0.269 0.329 0.390 0.458 0.550	67.5 67.2 67.0 67.1 66.9 66.8 66.8	163.71 139.77 131.39 110.47 86.06 68.00 55.19 34.27	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{6.08}$ $\frac{6.08}{4.08}$ $\frac{4.00}{2.92}$ $\frac{2.67}{2.33}$ $\frac{1.83}{1.24}$	± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389 0.460 0.549	(θ) 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/\text{d}p\text{d}}{5.85}$ $\frac{4.25}{3.68}$ $\frac{2.52}{2.19}$ $\frac{1.72}{1.39}$	Ω ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.181 0.220 0.269 0.329 0.390 0.458 0.550 0.658	67.5 67.2 67.0 67.1 66.9 66.8 66.8	163.71 139.77 131.39 110.47 86.06 68.00 55.19 34.27 21.17	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{6.08}$ $\frac{6.08}{4.08}$ $\frac{4.00}{2.92}$ $\frac{2.67}{2.33}$ $\frac{1.83}{1.24}$ $\frac{0.89}{2.89}$	± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389 0.460 0.549 0.654	(θ) 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ \hline 5.85 \\ 4.25 \\ 3.68 \\ 2.52 \\ 2.19 \\ 1.72 \\ 1.39 \\ 1.06 \\ 0.70 \\ \end{array}$	Ω ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.145 0.181 0.220 0.269 0.329 0.390 0.458 0.550 0.658 0.804	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5	163.71 139.77 131.39 110.47 86.06 68.00 55.19 34.27 21.17 9.58	d ² ± ± ± ± ± ± ± ± ± ±	6.08 4.08 4.00 2.92 2.67 2.33 1.83 1.24 0.89 0.48	± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389 0.460 0.549 0.654 0.797	(θ) 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6 82.0	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/dpd}{5.85}$ 4.25 3.68 2.52 2.19 1.72 1.39 1.06 0.70 0.31	Ω ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.181 0.220 0.269 0.329 0.390 0.458 0.550 0.658	67.5 67.2 67.0 67.1 66.9 66.8 66.8	163.71 139.77 131.39 110.47 86.06 68.00 55.19 34.27 21.17 9.58 1.77	d ² ± ± ± ± ± ± ± ± ± ± ±	6.08 4.08 4.00 2.92 2.67 2.33 1.83 1.24 0.89 0.48	± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389 0.460 0.549 0.654	(θ) 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/dpd}{5.85}$ 4.25 3.68 2.52 2.19 1.72 1.39 1.06 0.70 0.31 0.06	Ω ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.181 0.220 0.269 0.329 0.390 0.458 0.550 0.658 0.804 1.029	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3	163.71 139.77 131.39 110.47 86.06 68.00 55.19 34.27 21.17 9.58	d ² ± ± ± ± ± ± ± ± ± ± ± ±	2σ/dpd9 6.08 4.08 4.00 2.92 2.67 2.33 1.83 1.24 0.89 0.48 0.12	± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \end{array}$	\$\langle \langle \langle \langle \rangle\$ 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6 82.0 80.5	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 0.70 $ $ 0.31 $ $ 0.06 $	Ω ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.390 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \end{array} $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \\ 90 < \theta \end{array}$	d ² ± ± ± ± ± ± ± d ²	2 \(\sigma / \text{dpdg} \) 6.08 4.08 4.00 2.92 2.67 2.33 1.83 1.24 0.89 0.48 0.12	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34	$\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.269 0.329 0.389 0.460 0.549 0.654 0.797 1.024	$\langle \theta \rangle$ 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6 82.0 80.5	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ 25 $ $ \sigma/\mathrm{d}p\mathrm{d}$	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.390 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ \end{array} $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \text{dpdg} \) 6.08 4.08 4.00 2.92 2.67 2.33 1.83 1.24 0.89 0.48 0.12 05 2 \(\sigma / \text{dpdg} \) 69.59	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.8 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ 4.25 3.68 2.52 2.19 1.72 1.39 1.06 0.70 0.31 0.06 $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ 4.62	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ \end{array} $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	2 \(\sigma \) \(\delta \) \(\d	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \langle \theta \rangle \\ 114.8 \\ 113.9 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 1.06 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ 4.62 $ $ 2.86 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.390 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ \end{array} $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3 (θ) 97.5 97.6 97.3	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ \end{array}$	d ² ± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.24 \\ 0.89 \\ 0.48 \\ 0.12 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.69.59 \\ 4.11 \\ 3.33 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \langle \theta \rangle \\ 114.8 \\ 113.9 \\ 114.0 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 1.06 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ 4.62 $ $ 2.86 $ $ 2.33 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.145 0.181 0.220 0.269 0.329 0.329 0.458 0.550 0.658 0.804 1.029 (p _T) 0.144 0.179 0.219 0.267	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.83 \\ 1.24 \\ 0.89 \\ 0.12 \\ \hline 05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}9 \\ 69.59 \\ 4.11 \\ 3.33 \\ 2.20 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \langle \theta \rangle \\ 114.8 \\ 113.9 \\ 114.0 \\ 113.5 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 1.06 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ 4.62 $ $ 2.86 $ $ 2.33 $ $ 1.44 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.390 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ \end{array} $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3 (θ) 97.5 97.6 97.3	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ \end{array}$	d ² ± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.24 \\ 0.89 \\ 0.48 \\ 0.12 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.69.59 \\ 4.11 \\ 3.33 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 17.04 5.83 3.71 2.46 2.13	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \langle \theta \rangle \\ 114.8 \\ 113.9 \\ 114.0 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14 23.40		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 1.06 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ 4.62 $ $ 2.86 $ $ 2.33 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.145 0.181 0.220 0.269 0.329 0.329 0.458 0.550 0.658 0.804 1.029 (p _T) 0.144 0.179 0.219 0.267	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3 (θ) 97.5 97.6 97.3 96.9	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.83 \\ 1.24 \\ 0.89 \\ 0.12 \\ \hline 05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}9 \\ 69.59 \\ 4.11 \\ 3.33 \\ 2.20 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 17.04 5.83 3.71 2.46	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \langle \theta \rangle \\ 114.8 \\ 113.9 \\ 114.0 \\ 113.5 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 1.06 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ 4.62 $ $ 2.86 $ $ 2.33 $ $ 1.44 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.91 1.78 1.28 0.60 0.13 7.53 3.46 2.57 1.69
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.145 0.181 0.220 0.269 0.329 0.392 0.458 0.550 0.658 0.804 1.029 (p _T) 0.144 0.179 0.219 0.267 0.331	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.5 66.3 (θ) 97.5 97.6 97.3 96.9 97.0	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ 39.47 \\ 26.30 \\ 22.67 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.83 \\ 1.24 \\ 0.89 \\ 0.48 \\ 0.12 \\ \hline 05 \\ \hline 05 \\ \hline 05 \\ \hline 069.59 \\ 4.11 \\ 3.33 \\ 2.20 \\ 1.82 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 17.04 5.83 3.71 2.46 2.13	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.330 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6 82.0 80.5 $\langle \theta \rangle$ 114.8 113.9 114.0 113.5 113.3	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14 23.40		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} \\ 4.25 \\ 3.68 \\ 2.52 \\ 2.19 \\ 1.72 \\ 1.39 \\ 1.06 \\ 0.70 \\ 0.31 \\ 0.06 \\ 25 \\ \frac{\sigma/\mathrm{d}p\mathrm{d}}{4.62} \\ 2.86 \\ 2.33 \\ 1.44 \\ 1.19 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.78 1.28 0.60 0.13
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.390 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.331 \\ 0.390 \\ \hline \end{array} $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3 (θ) 97.5 97.6 97.3 96.9 97.0 97.1	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ 39.47 \\ 26.30 \\ \hline \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.83 \\ 1.24 \\ 0.89 \\ 0.48 \\ 0.12 \\ \hline 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 69.59 \\ 4.11 \\ 3.33 \\ 2.20 \\ 1.82 \\ 1.47 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 17.04 5.83 3.71 2.46 2.13 1.70	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.330 \\ 0.389 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.8 82.3 82.1 81.8 81.9 81.6 81.4 81.6 82.0 80.5 $\langle \theta \rangle$ 114.8 113.9 114.0 113.5 113.3	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14 23.40 14.44	$ \begin{array}{c} < 90 \\ d^2 \\ \pm \\ \pm$	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} \\ 4.25 \\ 3.68 \\ 2.52 \\ 2.19 \\ 1.72 \\ 1.39 \\ 1.06 \\ 0.70 \\ 0.31 \\ 0.06 \\ \hline \frac{\sigma/\mathrm{d}p\mathrm{d}}{4.62} \\ 2.86 \\ 2.33 \\ 1.44 \\ 1.19 \\ 0.94 \\ $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.78 1.28 0.60 0.13 7.53 3.46 2.57 1.69 1.54 1.26
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.145 \\ 0.181 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.390 \\ 0.458 \\ 0.550 \\ 0.658 \\ 0.804 \\ 1.029 \\ \hline \\ $	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.5 66.3 (θ) 97.5 97.6 97.3 96.9 97.0 97.1	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ 39.47 \\ 26.30 \\ 22.67 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{6.08}$ $\frac{4.08}{4.00}$ $\frac{4.00}{2.92}$ $\frac{2.67}{2.33}$ $\frac{1.83}{1.24}$ $\frac{0.89}{0.48}$ $\frac{0.12}{0.05}$ $\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{69.59}$ $\frac{4.11}{3.33}$ $\frac{2.20}{1.82}$ $\frac{1.47}{1.22}$	# # # # # # # # # # # # # # # # # # #	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 17.04 5.83 3.71 2.46 2.13 1.70 1.96	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.330 \\ 0.389 \\ 0.456 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \hline \\ \langle \theta \rangle \\ 114.8 \\ 113.9 \\ 114.0 \\ 113.5 \\ 113.3 \\ 113.8 \\ 113.0 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14 23.40 14.44 8.95		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.06 $ $ 0.70 $ $ 0.31 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} $ $ 4.62 $ $ 2.86 $ $ 2.33 $ $ 1.44 $ $ 1.19 $ $ 0.94 $ $ 0.61 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.78 1.28 0.60 0.13 7.53 3.46 2.57 1.69 1.54 1.26 1.02
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.181 0.220 0.269 0.329 0.329 0.458 0.558 0.804 1.029 0.144 0.179 0.219 0.267 0.331 0.390 0.459 0.547	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3 97.5 97.6 97.3 96.9 97.1 97.3 96.9	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ 39.47 \\ 26.30 \\ 22.67 \\ 12.06 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.83 \\ 1.24 \\ 0.89 \\ 0.48 \\ \hline 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 69.59 \\ 4.11 \\ 3.33 \\ 2.20 \\ 1.82 \\ 1.47 \\ 1.22 \\ 0.76 \\ \end{array}$		7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 77.04 5.83 3.71 2.46 2.13 1.70 1.96 1.33	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.330 \\ 0.389 \\ 0.456 \\ 0.542 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ \hline \\ 114.8 \\ 113.9 \\ 114.0 \\ 113.5 \\ 113.3 \\ 113.8 \\ 113.0 \\ 112.6 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14 23.40 14.44 8.95 2.87	$ \frac{< 90}{d^2} $ $ \pm $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} \\ 4.25 \\ 3.68 \\ 2.52 \\ 2.19 \\ 1.72 \\ 1.39 \\ 1.06 \\ 0.70 \\ 0.31 \\ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} \\ 4.62 \\ 2.86 \\ 2.33 \\ 1.44 \\ 1.19 \\ 0.94 \\ 0.61 \\ 0.30 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.78 1.28 0.60 0.13 7.53 3.46 2.57 1.69 1.54 1.26 1.02 0.46
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.181 0.220 0.269 0.329 0.390 0.458 0.550 0.658 0.804 1.029 0.144 0.179 0.219 0.267 0.331 0.390 0.459 0.556	67.5 67.2 67.0 67.1 66.9 66.8 66.8 66.7 66.5 66.3 97.5 97.6 97.3 96.9 97.1 97.3 96.9 96.5	$\begin{array}{c} 163.71 \\ 139.77 \\ 131.39 \\ 110.47 \\ 86.06 \\ 68.00 \\ 55.19 \\ 34.27 \\ 21.17 \\ 9.58 \\ 1.77 \\ \hline \\ 90 < \theta \\ \hline \\ 217.04 \\ 117.25 \\ 88.61 \\ 59.88 \\ 39.47 \\ 26.30 \\ 22.67 \\ 12.06 \\ 3.95 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.08 \\ 4.08 \\ 4.00 \\ 2.92 \\ 2.67 \\ 2.33 \\ 1.83 \\ 1.24 \\ 0.89 \\ 0.48 \\ 0.12 \\ \hline \begin{array}{c} 05 \\ 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 69.59 \\ 4.11 \\ 3.33 \\ 2.20 \\ 1.82 \\ 1.47 \\ 1.22 \\ 0.76 \\ 0.37 \\ \end{array}$	# # # # # # # # # # # # # # # # # # #	7.14 6.25 4.04 3.41 2.67 2.68 2.15 1.83 1.16 0.34 17.04 5.83 3.71 2.46 2.13 1.70 1.96 1.33 0.60	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.460 \\ 0.549 \\ 0.654 \\ 0.797 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.330 \\ 0.389 \\ 0.456 \\ 0.542 \\ 0.652 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.8 \\ 82.3 \\ 82.1 \\ 81.8 \\ 81.9 \\ 81.6 \\ 81.4 \\ 81.6 \\ 82.0 \\ 80.5 \\ \hline \\ 114.8 \\ 113.9 \\ 114.0 \\ 113.5 \\ 113.3 \\ 113.3 \\ 113.6 \\ 112.6 \\ 112.8 \\ \end{array} $	$75 < \theta$ 111.04 130.74 107.99 77.70 57.15 38.50 31.75 21.97 11.98 4.09 0.53 $105 < \theta$ 124.99 82.50 58.24 34.14 23.40 14.44 8.95 2.87 1.03	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{5.85} $ $ 4.25 $ $ 3.68 $ $ 2.52 $ $ 2.19 $ $ 1.72 $ $ 1.39 $ $ 0.60 $ $ 0.31 $ $ 0.06 $ $ 25 $ $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{4.62} $ $ 2.86 $ $ 2.33 $ $ 1.44 $ $ 1.19 $ $ 0.94 $ $ 0.61 $ $ 0.30 $ $ 0.15 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.45 6.75 5.00 3.28 2.69 1.81 1.78 1.28 0.60 0.13 7.53 3.46 2.57 1.69 1.54 1.26 1.02 0.46 0.26

Table A.15: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^+ + Cu $\to \pi^-$ + X interactions with +5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	$\theta < 3$	80					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.115	25.1	200.20	±	7.97	\pm	16.47	0.115	35.0	178.01	±	7.07	\pm	14.29
0.13-0.16	0.145	24.7	225.10	\pm	7.74	\pm	14.86	0.144	34.7	186.67	\pm	6.84	\pm	12.36
0.16-0.20	0.180	24.9	227.21	\pm	6.47	\pm	12.14	0.179	34.9	180.59	\pm	5.59	\pm	9.85
0.20-0.24	0.219	24.8	238.32	\pm	6.60	\pm	11.24	0.220	34.7	179.42	\pm	5.62	\pm	8.40
0.24-0.30	0.268	24.9	203.11	\pm	4.91	\pm	7.61	0.269	34.8	164.35	\pm	4.32	\pm	6.22
0.30-0.36	0.328	24.9	163.72	\pm	4.39	\pm	5.59	0.327	35.0	139.18	\pm	4.05	\pm	4.86
0.36-0.42	0.388	24.9	124.60	\pm	3.81	\pm	4.39	0.387	34.7	111.21	\pm	3.56	\pm	3.96
0.42-0.50	0.455	25.0	92.40	\pm	2.92	\pm	4.13	0.455	34.8	75.15	\pm	2.56	\pm	3.08
0.50-0.60	0.543	25.0	55.21	±	1.92	\pm	3.11	0.542	34.9	52.18	\pm	1.94	\pm	2.89
0.60-0.72	0.649	25.1	33.52	\pm	1.40	\pm	2.60	0.649	34.9	28.09	\pm	1.27	\pm	2.13
0.72-0.90	0.0.5	20.1	00.02		11.10		2.00	0.790	34.7	13.80	\pm	0.74	\pm	1.44
0.72 0.50			10 < () / 5	· O			1 01770	5	$50 < \theta$				
	/m \	$\langle \theta \rangle$	$40 < \theta$	ر < 5 12ء	$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	<u> </u>		/m \	$\langle \theta \rangle$	ου < θ	< 00	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	<u> </u>	
p_{T}	$\langle p_{\rm T} \rangle$		140.42				12.22	$\langle p_{\mathrm{T}} \rangle$	(0)		a-	o / apas		
0.10-0.13	0.115	45.1	149.42	±	6.80	±	12.33	0.145	510	12412		5.05		0.01
0.13-0.16	0.144	45.0	160.89	±	6.26	±	10.63	0.145	54.9	134.13	±	5.95	±	9.01
0.16-0.20	0.179	44.9	142.02	±	4.96	±	7.97	0.179	55.1	136.98	±	4.96	±	7.59
0.20-0.24	0.220	44.9	137.84	±	4.93	±	6.90	0.220	55.0	112.70	±	4.25	±	5.62
0.24-0.30	0.268	44.9	129.97	±	3.93	±	5.25	0.268	54.8	95.48	±	3.24	±	3.85
0.30-0.36	0.329	44.7	104.26	±	3.44	±	3.68	0.328	54.6	92.97	±	3.34	±	3.66
0.36-0.42	0.387	45.0	86.79	±	3.24	\pm	3.37	0.388	54.9	66.58	±	2.82	±	2.74
0.42-0.50	0.455	44.9	68.38	±	2.45	\pm	2.96	0.456	54.5	50.14	\pm	2.11	\pm	2.36
0.50-0.60	0.542	44.7	43.59	\pm	1.76	\pm	2.55	0.542	54.7	36.43	\pm	1.65	\pm	2.37
0.60-0.72	0.650	44.9	23.18	\pm	1.15	\pm	1.86	0.650	54.9	17.34	\pm	1.00	\pm	1.47
0.72-0.90	0.791	44.7	13.04	\pm	0.76	\pm	1.50	0.793	54.4	8.21	\pm	0.57	\pm	0.94
0.90-1.25								1.018	54.8	2.07	\pm	0.20	\pm	0.36
								1.010	20					
			$60 < \theta$					1.010		$75 < \theta$	< 90)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{ m T} angle$	$\langle heta angle$	$75 < \theta$	< 90 d^{2}	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
p _T 0.13–0.16	0.145	67.3	133.33	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{5.37}$	\pm	8.88	$\langle p_{\mathrm{T}} \rangle$ 0.143	⟨θ⟩ 82.2	$75 < \theta$	< 90 d^2 \pm	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{58.59}$	Ω ±	27.43
p _T 0.13–0.16 0.16–0.20	0.145 0.180	67.3 67.5	133.33 115.97	d ² ± ±	$\frac{2\sigma/dpd\Omega}{5.37}$ 3.74	± ±	5.84	$\langle p_{\rm T} \rangle$ 0.143 0.179	(θ) 82.2 82.3	$75 < \theta$ 194.12 110.06	< 90 d ² ± ±	$\frac{\sigma/dpd9}{58.59}$	Ω ± ±	27.43 5.87
p _T 0.13-0.16 0.16-0.20 0.20-0.24	0.145 0.180 0.218	67.3 67.5 67.2	133.33 115.97 90.83	# # #	$\frac{2\sigma/dpd\Omega}{5.37}$ 3.74 3.12	± ± ±	5.84 4.08	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219	(θ) 82.2 82.3 82.4	75 < θ 194.12 110.06 89.79	< 90 d ² ± ± ±	$\frac{\sigma/dpd9}{58.59}$ 3.93 3.28	12 ± ± ±	27.43 5.87 4.02
p _T 0.13–0.16 0.16–0.20	0.145 0.180	67.3 67.5	133.33 115.97 90.83 81.77	# # # #	$\frac{2\sigma/dpd\Omega}{5.37}$ 3.74	± ±	5.84	$\langle p_{\rm T} \rangle$ 0.143 0.179	(θ) 82.2 82.3	75 < θ 194.12 110.06 89.79 63.43	< 90 d ² ± ± ± ±	$\frac{\sigma/dpd9}{58.59}$	Ω ± ±	27.43 5.87
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.145 0.180 0.218 0.269 0.328	67.3 67.5 67.2 67.1 67.2	133.33 115.97 90.83 81.77 64.84	# # #	$\frac{2\sigma/dpd\Omega}{5.37}$ 3.74 3.12 2.54 2.30	± ± ± ±	5.84 4.08 3.27 2.62	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.328	(θ) 82.2 82.3 82.4 82.1 81.8	75 < θ 194.12 110.06 89.79 63.43 43.69	< 90 d ² ± ± ± ± ± ± ± ±	$\frac{\sigma}{dp}ds$ 58.59 3.93 3.28 2.24 1.90	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.145 0.180 0.218 0.269	67.3 67.5 67.2 67.1	133.33 115.97 90.83 81.77	# # # #	$\frac{2\sigma/dpd\Omega}{5.37}$ 3.74 3.12 2.54	± ± ±	5.84 4.08 3.27	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268	(θ) 82.2 82.3 82.4 82.1	75 < θ 194.12 110.06 89.79 63.43	< 90 d ² ± ± ± ±	$\frac{\sigma}{dpds}$ 58.59 3.93 3.28 2.24	12 ± ± ± ±	27.43 5.87 4.02 2.62
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.180 0.218 0.269 0.328 0.387 0.455	67.3 67.5 67.2 67.1 67.2	133.33 115.97 90.83 81.77 64.84 45.68 38.99	d ² ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd\Omega}{5.37}$ 3.74 3.12 2.54 2.30	± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.328	(θ) 82.2 82.3 82.4 82.1 81.8	75 < θ 194.12 110.06 89.79 63.43 43.69 33.11 21.91	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}s}{58.59}$ $\frac{3.93}{3.28}$ $\frac{3.28}{2.24}$ $\frac{1.90}{1.67}$ $\frac{1.17}{1.17}$	± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542	67.3 67.5 67.2 67.1 67.2 66.7 67.0	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{5.37}$ $\frac{3.74}{3.12}$ $\frac{2.54}{2.30}$ $\frac{1.87}{1.56}$ $\frac{1.08}{1.08}$	± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.328 0.387 0.454 0.543	82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd9 58.59 3.93 3.28 2.24 1.90 1.67 1.17 0.85	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646	67.3 67.5 67.2 67.1 67.2 66.7 67.0 67.0	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57 12.33	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{5.37}$ $\frac{3.74}{3.12}$ $\frac{2.54}{2.30}$ $\frac{1.87}{1.56}$ $\frac{1.08}{0.71}$	± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.328 0.387 0.454 0.543 0.650	82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd9}{58.59} $ 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55	10 ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646 0.785	67.3 67.5 67.2 67.1 67.2 66.7 67.0 67.0 66.7	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57 12.33 5.64	d ² ± ± ± ± ± ± ± ± ± ±	5.37 3.74 3.12 2.54 2.30 1.87 1.56 1.08 0.71 0.40	± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 82.5	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd9}{58.59} $ 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646	67.3 67.5 67.2 67.1 67.2 66.7 67.0 67.0	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57 12.33	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{5.37}$ $\frac{3.74}{3.12}$ $\frac{2.54}{2.30}$ $\frac{1.87}{1.56}$ $\frac{1.08}{0.71}$	± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14	$\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.328 0.387 0.454 0.543 0.650	82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	58.59 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28 0.06	10 ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646 0.785	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57 12.33 5.64	d ² ± ± ± ± ± ± ± ± ± ±	5.37 3.74 3.12 2.54 2.30 1.87 1.56 1.08 0.71 0.40 0.12	± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \end{array}$	(\(\theta\)) 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	58.59 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28 0.06	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646 0.785 0.998	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57 12.33 5.64 1.26	d ² ± ± ± ± ± ± ± ± ± = ± = =	5.37 3.74 3.12 2.54 2.30 1.87 1.56 1.08 0.71 0.40 0.12	* * * * * * * * * * * *	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 82.5	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45	< 90 d^{2} \pm	58.59 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28 0.06	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646 0.785	67.3 67.5 67.2 67.1 67.2 66.7 67.0 67.0 66.7	133.33 115.97 90.83 81.77 64.84 45.68 38.99 24.57 12.33 5.64 1.26	d ² ± ± ± ± ± ± ± ± ± = ± = =	5.37 3.74 3.12 2.54 2.30 1.87 1.56 1.08 0.71 0.40 0.12	* * * * * * * * * * * *	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \end{array}$	(\(\theta\)) 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45	< 90 d^{2} \pm	$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{58.59} $ 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28 0.06	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \langle p_{\rm T} \rangle \\ \end{array} $	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ $	2 \(\sigma \) \(\dot{\text{dpds}} \) 5.37 3.74 3.12 2.54 2.30 1.87 1.56 1.08 0.71 0.40 0.12 05	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.2 \\ 82.3 \\ 82.4 \\ 82.1 \\ 81.8 \\ 81.8 \\ 81.3 \\ 81.0 \\ 82.5 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ \end{array} $	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$	< 90 d^{2} \pm	$\sigma/\mathrm{d}p\mathrm{d}s$ 58.59 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28 0.06	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ \end{array} $	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline 90 < \theta \\ \\ 204.39 \\ \end{array}$	d ² ± ± ± ± ± ± ± d ²	2 \(\sigma/\) \(\delta \) \(\d	± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \end{array}$	82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65		$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{58.59} $ $ \frac{58.59}{3.93} $ $ \frac{3.28}{2.24} $ $ \frac{1.90}{1.67} $ $ \frac{1.17}{0.85} $ $ \frac{0.55}{0.28} $ $ \frac{0.06}{0.06} $ $ \frac{25}{4.05} $	π ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.178 \\ 0.218 \\ \end{array} $	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8 (θ) 96.1 97.7 97.5	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 0.71 \\ 0.40 \\ 0.12 \\ \hline 0.5 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 60.39 \\ 3.75 \\ 2.94 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.2 \\ 82.3 \\ 82.4 \\ 82.1 \\ 81.8 \\ 81.8 \\ 81.3 \\ 81.0 \\ 82.5 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.9 \\ 113.7 \\ \end{array} $	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \sigma/\mathrm{d}p\mathrm{d}s \\ \hline \sigma/\mathrm{d}p\mathrm{d}s \\ 58.59 \\ 3.93 \\ 3.28 \\ 2.24 \\ 1.90 \\ 1.67 \\ 1.17 \\ 0.85 \\ 0.55 \\ 0.28 \\ 0.06 \\ \hline 0.06 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}s \\ 4.05 \\ 2.64 \\ 1.91 \\ \end{array}$	1	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.178 \\ 0.218 \\ 0.266 \\ \end{array} $	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8 (θ) 96.1 97.7 97.5 97.2	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.12 \\ \hline \\ 0.5 \\ \hline \\ 0.60 \\ 3.75 \\ 2.94 \\ 2.00 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ \end{array}$	(θ) 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6 (θ) 114.4 113.9 113.7 113.8	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29		$\begin{array}{c} \sigma/\mathrm{d}p\mathrm{d}s\\ \hline \sigma/\mathrm{d}p\mathrm{d}s\\ 58.59\\ 3.93\\ 3.28\\ 2.24\\ 1.90\\ 1.67\\ 1.17\\ 0.85\\ 0.55\\ 0.28\\ 0.06\\ \hline \sigma/\mathrm{d}p\mathrm{d}s\\ 4.05\\ 2.64\\ 1.91\\ 1.26\\ \end{array}$	1	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.148 \\ 0.218 \\ 0.226 \\ 0.328 \\ \end{array} $	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8 (θ) 96.1 97.7 97.5 97.2 97.0	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ 30.09 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.12 \\ \hline 0.5 \\ \hline 0.5 \\ 0.05 \\ \hline 0.375 \\ 2.94 \\ 2.00 \\ 1.57 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44 1.78	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ 0.326 \\ \hline \end{array}$	(θ) 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6 (θ) 114.4 113.9 113.7 113.8 113.7	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29 17.52	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \sigma/\mathrm{d}p\mathrm{d}S \\ 58.59 \\ 3.93 \\ 3.28 \\ 2.24 \\ 1.90 \\ 1.67 \\ 1.17 \\ 0.85 \\ 0.55 \\ 0.28 \\ 0.06 \\ \hline 0.06 \\ \hline 25 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 4.05 \\ 2.64 \\ 1.91 \\ 1.26 \\ 1.04 \\ \end{array}$	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48 1.38
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.148 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.328 \\ 0.386 \\ \hline \end{array} $	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.7 66.8 (θ) 96.1 97.7 97.5 97.2 97.0 97.1	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ 30.09 \\ 18.96 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.12 \\ \hline 0.05 \\ 0.05 \\ \hline 0.05 \\ 0.05 \\ \hline 0.05 \\ 0.05 \\ \hline 0.05$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44 1.78 1.39	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.388 \\ \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6 $\langle \theta \rangle$ 114.4 113.9 113.7 113.8 113.7	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29 17.52 11.04	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\sigma/\mathrm{d}p\mathrm{d}S$ 58.59 3.93 3.28 2.24 1.90 1.67 1.17 0.85 0.55 0.28 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}S$ 4.05 2.64 1.91 1.26 1.04 0.82	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48 1.38 1.12
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$\begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.328 \\ 0.386 \\ 0.457 \\ \hline \end{array}$	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.8 (θ) 96.1 97.7 97.5 97.2 97.0 97.1 96.4	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ 30.09 \\ 18.96 \\ 13.37 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.12 \\ \hline 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 60.39 \\ 3.75 \\ 2.94 \\ 2.00 \\ 1.57 \\ 1.22 \\ 0.93 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44 1.78 1.39 1.27	$\begin{array}{c} \langle p_{\rm T} \rangle \\ \hline \langle p_{\rm T} \rangle \\ \hline 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ \hline 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.388 \\ 0.457 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.3 81.0 82.5 80.6 $\langle \theta \rangle$ 114.4 113.9 113.7 113.7	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29 17.52 11.04 5.59	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{58.59} $ $ 3.93$ $ 3.28$ $ 2.24$ $ 1.90$ $ 1.67$ $ 1.17$ $ 0.85$ $ 0.28$ $ 0.06$ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}s} $ $ 4.05$ $ 2.64$ $ 1.91$ $ 1.26$ $ 1.04$ $ 0.82$ $ 0.51$	20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48 1.38 1.12 0.73
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646 0.785 0.998 (p _T) 0.148 0.178 0.218 0.266 0.328 0.386 0.457 0.538	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.8 (θ) 96.1 97.7 97.5 97.2 97.0 97.1 96.4 96.7	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ 30.09 \\ 18.96 \\ 13.37 \\ 8.32 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.012 \\ \hline \\ 0.05 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 60.39 \\ 3.75 \\ 2.94 \\ 2.00 \\ 1.57 \\ 1.22 \\ 0.93 \\ 0.65 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44 1.78 1.39 1.27 1.03	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.388 \\ 0.457 \\ 0.540 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.3 81.0 82.5 80.6 $\langle \theta \rangle$ 114.4 113.9 113.7 113.8 113.7 113.7	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29 17.52 11.04 5.59 2.13	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{58.59} $ $ 3.93$ $ 3.28$ $ 2.24$ $ 1.90$ $ 1.67$ $ 1.17$ $ 0.85$ $ 0.28$ $ 0.06$ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}s} $ $ 4.05$ $ 2.64$ $ 1.91$ $ 1.26$ $ 1.04$ $ 0.82$ $ 0.51$ $ 0.27$	20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48 1.38 1.12 0.73 0.38
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$\begin{array}{c} 0.145 \\ 0.180 \\ 0.218 \\ 0.269 \\ 0.328 \\ 0.387 \\ 0.455 \\ 0.542 \\ 0.646 \\ 0.785 \\ 0.998 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.178 \\ 0.218 \\ 0.266 \\ 0.328 \\ 0.386 \\ 0.457 \\ 0.538 \\ 0.649 \\ \hline \end{array}$	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.8 (θ) 96.1 97.7 97.5 97.2 97.0 97.1 96.4 96.7 96.6	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ 30.09 \\ 18.96 \\ 13.37 \\ 8.32 \\ 3.23 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.12 \\ \hline \\ 0.60 \\ 60.39 \\ 3.75 \\ 2.94 \\ 2.00 \\ 1.57 \\ 1.22 \\ 0.93 \\ 0.65 \\ 0.36 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44 1.78 1.39 1.27 1.03 0.54	$\begin{array}{c} \langle p_{\rm T} \rangle \\ \hline \langle p_{\rm T} \rangle \\ \hline 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ \hline 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.388 \\ 0.457 \\ 0.540 \\ 0.653 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.8 81.3 81.0 82.5 80.6 $\langle \theta \rangle$ 114.4 113.9 113.7 113.8 113.7 111.8 110.9	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29 17.52 11.04 5.59 2.13 0.86	$\begin{array}{c} < 90 \\ \hline d^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{58.59} $ $ 3.93$ $ 3.28$ $ 2.24$ $ 1.90$ $ 1.67$ $ 1.17$ $ 0.85$ $ 0.28$ $ 0.06$ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}s} $ $ 4.05$ $ 2.64$ $ 1.91$ $ 1.26$ $ 1.04$ $ 0.82$ $ 0.51$ $ 0.27$ $ 0.14$	\(\frac{\pma}{\pmu}\) \(\pm\)	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48 1.38 1.12 0.73 0.38 0.24
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.180 0.218 0.269 0.328 0.387 0.455 0.542 0.646 0.785 0.998 (p _T) 0.148 0.178 0.218 0.266 0.328 0.386 0.457 0.538	67.3 67.5 67.2 67.1 67.2 66.7 67.0 66.7 66.8 (θ) 96.1 97.7 97.5 97.2 97.0 97.1 96.4 96.7	$\begin{array}{c} 133.33 \\ 115.97 \\ 90.83 \\ 81.77 \\ 64.84 \\ 45.68 \\ 38.99 \\ 24.57 \\ 12.33 \\ 5.64 \\ 1.26 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 204.39 \\ 97.84 \\ 67.85 \\ 45.80 \\ 30.09 \\ 18.96 \\ 13.37 \\ 8.32 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.37 \\ 3.74 \\ 3.12 \\ 2.54 \\ 2.30 \\ 1.87 \\ 1.56 \\ 1.08 \\ 0.71 \\ 0.40 \\ 0.012 \\ \hline \\ 0.05 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 60.39 \\ 3.75 \\ 2.94 \\ 2.00 \\ 1.57 \\ 1.22 \\ 0.93 \\ 0.65 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.84 4.08 3.27 2.62 1.95 2.14 1.69 1.14 0.72 0.24 29.83 5.02 3.15 2.44 1.78 1.39 1.27 1.03	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.454 \\ 0.543 \\ 0.650 \\ 0.788 \\ 1.015 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.178 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.388 \\ 0.457 \\ 0.540 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.2 82.3 82.4 82.1 81.8 81.8 81.3 81.0 82.5 80.6 $\langle \theta \rangle$ 114.4 113.9 113.7 113.8 113.7 113.7	$75 < \theta$ 194.12 110.06 89.79 63.43 43.69 33.11 21.91 14.17 7.38 2.88 0.45 $105 < \theta$ 99.65 69.93 39.82 25.29 17.52 11.04 5.59 2.13	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{58.59} $ $ 3.93$ $ 3.28$ $ 2.24$ $ 1.90$ $ 1.67$ $ 1.17$ $ 0.85$ $ 0.28$ $ 0.06$ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}s} $ $ 4.05$ $ 2.64$ $ 1.91$ $ 1.26$ $ 1.04$ $ 0.82$ $ 0.51$ $ 0.27$	20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27.43 5.87 4.02 2.62 2.10 1.93 1.50 1.27 0.87 0.46 0.13 5.46 3.02 1.96 1.48 1.38 1.12 0.73 0.38

Table A.16: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^- + Cu \to p + X interactions with -5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$							$30 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.219	25.2	408.33	\pm	9.83	\pm	22.13							
0.24-0.30	0.267	25.2	365.49	\pm	7.25	\pm	17.35	0.269	34.9	412.34	\pm	7.74	\pm	18.21
0.30-0.36	0.326	25.2	305.38	\pm	6.58	\pm	12.42	0.326	35.2	356.95	\pm	7.03	\pm	13.37
0.36-0.42	0.385	25.2	248.79	\pm	5.85	\pm	8.81	0.385	35.0	292.51	\pm	6.31	\pm	9.40
0.42-0.50	0.452	25.4	199.83	\pm	4.54	\pm	6.29	0.451	35.2	232.23	\pm	4.84	\pm	6.54
0.50-0.60	0.536	25.3	142.76	\pm	3.40	\pm	4.53	0.537	35.0	180.82	\pm	3.86	\pm	5.23
0.60-0.72	0.641	25.4	94.14	\pm	2.44	\pm	3.75	0.642	35.1	123.10	\pm	2.87	\pm	4.66
0.72-0.90								0.780	35.1	67.44	\pm	1.75	\pm	3.82
			$40 < \theta$	< 5	0					$50 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.327	45.1	391.51	\pm	7.29	\pm	12.50							
0.36-0.42	0.384	45.0	323.08	\pm	6.63	\pm	9.17	0.384	55.1	339.78	\pm	6.53	\pm	11.22
0.42-0.50	0.451	45.0	260.34	\pm	5.12	\pm	6.97	0.451	55.0	279.66	\pm	5.27	\pm	7.72
0.50-0.60	0.538	45.0	190.74	\pm	3.95	\pm	5.69	0.538	55.0	201.53	\pm	4.04	\pm	6.69
0.60-0.72	0.641	44.9	133.84	\pm	3.05	\pm	5.24	0.641	55.1	126.61	\pm	2.96	\pm	5.56
0.72-0.90	0.781	45.0	75.84	\pm	1.88	\pm	4.30	0.779	54.9	72.82	\pm	1.87	\pm	4.52
0.90-1.25	0.997	45.0	22.64	±	0.71	\pm	2.05	0.999	55.0	19.95	±	0.65	±	1.90
			$60 < \theta$	< 7	5					$75 < \theta$	< 90)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.547	67.6	186.71	±	3.10	±	6.94							
0.60-0.72	0.654	67.4	119.47	\pm	2.30	\pm	6.41	0.654	81.9	80.09	\pm	1.85	\pm	5.67
0.72-0.90	0.796	67.2	57.74	\pm	1.32	\pm	4.66	0.796	81.7	34.09	\pm	0.98	\pm	3.38
0.90-1.25	1.031	67.1	15.81	\pm	0.48	\pm	2.08	1.021	81.7	8.86	±	0.35	\pm	1.34
			$90 < \theta$	< 10)5					$105 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.457	113.4	101.23	\pm	2.33	\pm	5.48
0.50-0.60								0.544	112.8	50.10	\pm	1.36	\pm	4.62
0.60-0.72	0.650	97.1	47.09	\pm	1.39	\pm	4.24	0.650	113.0	20.02	\pm	0.78	\pm	2.80
0.72-0.90	0.794	96.5	18.37	\pm	0.72	\pm	2.10	0.788	112.0	5.93	\pm	0.33	\pm	1.26
0.90-1.25	1.028	96.0	3.21	±	0.19	±	0.55	1.018	112.5	0.46	±	0.05	±	0.16

Table A.17: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^- + Cu $\to \pi^+$ + X interactions with -5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	0 < 3	30					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	24.8	188.30	\pm	8.56	\pm	14.69	0.115	35.0	151.51	\pm	7.33	±	11.23
0.13-0.16	0.145	25.0	220.45	\pm	8.50	\pm	13.48	0.144	34.8	166.26	\pm	6.96	\pm	9.81
0.16-0.20	0.179	24.9	237.40	\pm	7.26	\pm	11.84	0.178	34.7	185.43	\pm	6.30	\pm	9.14
0.20-0.24	0.219	24.8	241.44	\pm	7.17	\pm	10.29	0.218	34.8	196.53	\pm	6.53	\pm	8.53
0.24-0.30	0.267	24.8	227.58	\pm	5.69	\pm	8.14	0.267	34.7	174.77	\pm	4.98	\pm	6.16
0.30-0.36	0.326	24.8	178.95	\pm	5.00	\pm	5.56	0.325	34.8	159.38	\pm	4.71	\pm	4.84
0.36-0.42	0.384	24.8	153.40	\pm	4.64	\pm	4.97	0.384	34.9	121.47	\pm	4.11	\pm	3.60
0.42-0.50	0.451	24.8	112.88	\pm	3.40	\pm	4.31	0.452	34.7	99.55	\pm	3.28	\pm	3.83
0.50-0.60	0.537	24.8	69.96	\pm	2.29	\pm	3.63	0.539	34.8	59.99	\pm	2.14	\pm	2.84
0.60-0.72	0.641	25.2	40.66	\pm	1.52	\pm	3.17	0.645	34.8	36.67	\pm	1.49	\pm	2.63
0.72-0.90				_		_		0.773	35.0	15.88	\pm	0.73	\pm	1.77
0.72 0.70			$40 < \theta$) / 5	.0			1 01772	22.0	$50 < \theta$			_	11,7,
	/20	$\langle \theta \rangle$	40 < 6	/ < 0	$\frac{\mathrm{d}}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$,		/**	$\langle \theta \rangle$	$50 < \theta$	< 00	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}}$	0	
p_{T}	$\langle p_{\rm T} \rangle$		106.67				0.62	$\langle p_{ m T} angle$	(0)		u-	$\sigma/\mathrm{d}p\mathrm{d}$	2 Z	
0.10-0.13	0.115	45.2	126.67	±	6.99	±	9.63	0.145		12475		C 10		0.26
0.13-0.16	0.144	45.1	150.65	±	6.75	±	8.92	0.145	55.1	134.75	±	6.49	±	8.26
0.16-0.20	0.179	44.8	164.42	±	5.97	±	8.20	0.179	54.8	131.88	±	5.24	±	6.53
0.20-0.24	0.218	44.9	148.80	±	5.61	±	6.40	0.218	54.9	121.45	±	5.02	±	5.18
0.24-0.30	0.267	44.9	138.76	±	4.35	±	4.89	0.268	54.8	107.01	±	3.88	±	3.76
0.30-0.36	0.327	44.8	118.95	\pm	4.10	±	3.64	0.327	54.9	94.37	\pm	3.66	\pm	2.97
0.36-0.42	0.385	44.7	105.95	\pm	3.93	±	3.50	0.384	54.8	78.38	\pm	3.38	\pm	2.69
0.42-0.50	0.451	44.7	72.01	\pm	2.76	\pm	2.46	0.452	54.8	59.06	\pm	2.51	\pm	2.22
0.50-0.60	0.538	44.7	48.46	\pm	2.01	\pm	2.27	0.537	54.6	39.58	\pm	1.86	\pm	2.08
0.60-0.72	0.644	44.5	28.09	\pm	1.32	\pm	1.86	0.643	54.6	22.99	\pm	1.24	\pm	1.63
0.72-0.90	0.778	44.3	13.22	\pm	0.70	\pm	1.33	0.777	54.6	9.21	\pm	0.60	\pm	0.94
0.90-1.25								0.996	54.9	2.55	\pm	0.20	±	0.42
			$60 < \theta$							$75 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$		
				±	5.57	\pm	7.62	0.149	82.0	91.20	\pm	6.32	\pm	7.99
0.13-0.16	0.145	67.0	119.88		5.57			0.1.7					\pm	5.06
0.13-0.16 0.16-0.20	0.145 0.180	67.0 67.1	119.88 124.06	±	4.24	\pm	6.06	0.180	82.1	105.58	\pm	4.11		2.00
1		1			4.24 3.63	$_{\pm}$		1	82.1 81.9	105.58 88.79	± ±	4.11 3.63	±	3.78
0.16-0.20	0.180	67.1	124.06	\pm	4.24		6.06	0.180						
0.16-0.20 0.20-0.24	0.180 0.219	67.1 67.2	124.06 97.55	$_{\pm}$	4.24 3.63	\pm	6.06 4.00	0.180 0.220	81.9	88.79	\pm	3.63	\pm	3.78
0.16-0.20 0.20-0.24 0.24-0.30	0.180 0.219 0.269	67.1 67.2 66.9	124.06 97.55 84.96	± ± ±	4.24 3.63 2.83	$_{\pm}$	6.06 4.00 2.95	0.180 0.220 0.267	81.9 82.1	88.79 66.27	± ±	3.63 2.58	± ±	3.78 2.64
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	0.180 0.219 0.269 0.330	67.1 67.2 66.9 67.2	124.06 97.55 84.96 68.47	± ± ±	4.24 3.63 2.83 2.64	± ±	6.06 4.00 2.95 2.72	0.180 0.220 0.267 0.328	81.9 82.1 81.8	88.79 66.27 43.14	± ± ±	3.63 2.58 2.08	± ± ±	3.78 2.64 1.78
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.180 0.219 0.269 0.330 0.389	67.1 67.2 66.9 67.2 67.0	124.06 97.55 84.96 68.47 49.23	± ± ± ±	4.24 3.63 2.83 2.64 2.16	± ± ±	6.06 4.00 2.95 2.72 1.70	0.180 0.220 0.267 0.328 0.390	81.9 82.1 81.8 81.8	88.79 66.27 43.14 32.58	± ± ±	3.63 2.58 2.08 1.78	± ± ±	3.78 2.64 1.78 1.43
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.180 0.219 0.269 0.330 0.389 0.458	67.1 67.2 66.9 67.2 67.0 66.7	124.06 97.55 84.96 68.47 49.23 38.65	± ± ± ± ± ±	4.24 3.63 2.83 2.64 2.16 1.68	± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75	0.180 0.220 0.267 0.328 0.390 0.458	81.9 82.1 81.8 81.8 81.9	88.79 66.27 43.14 32.58 25.95	± ± ± ±	3.63 2.58 2.08 1.78 1.39	± ± ± ±	3.78 2.64 1.78 1.43 1.46
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.180 0.219 0.269 0.330 0.389 0.458 0.546	67.1 67.2 66.9 67.2 67.0 66.7 66.7	124.06 97.55 84.96 68.47 49.23 38.65 29.88	± ± ± ± ± ± ±	4.24 3.63 2.83 2.64 2.16 1.68 1.32	± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83	0.180 0.220 0.267 0.328 0.390 0.458 0.544	81.9 82.1 81.8 81.8 81.9 81.9	88.79 66.27 43.14 32.58 25.95 15.62	± ± ± ± ± ±	3.63 2.58 2.08 1.78 1.39 0.96	± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653	67.1 67.2 66.9 67.2 67.0 66.7 66.7	124.06 97.55 84.96 68.47 49.23 38.65 29.88 13.49	± ± ± ± ± ± ± ±	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78	$\begin{array}{c} \pm\\ \pm\\ \pm\\ \pm\\ \pm\\ \pm\\ \end{array}$	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655	81.9 82.1 81.8 81.8 81.9 81.9	88.79 66.27 43.14 32.58 25.95 15.62 8.28	± ± ± ± ± ± ±	3.63 2.58 2.08 1.78 1.39 0.96 0.63	± ± ± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18 0.85
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792	67.1 67.2 66.9 67.2 67.0 66.7 66.7 66.3 66.3	124.06 97.55 84.96 68.47 49.23 38.65 29.88 13.49 5.70	$\pm \pm $	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78 0.40 0.10	± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1	88.79 66.27 43.14 32.58 25.95 15.62 8.28 2.96	\pm \pm \pm \pm \pm \pm \pm	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06	± ± ± ± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792 1.018	67.1 67.2 66.9 67.2 67.0 66.7 66.7 66.3 66.3	124.06 97.55 84.96 68.47 49.23 38.65 29.88 13.49 5.70 1.08	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78 0.40 0.10	± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794 1.014	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1	88.79 66.27 43.14 32.58 25.95 15.62 8.28 2.96 0.44	± ± ± ± ± ± ± ± < 12	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.7	124.06 97.55 84.96 68.47 49.23 38.65 29.88 13.49 5.70 1.08	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78 0.40 0.10	± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1 80.9	88.79 66.27 43.14 32.58 25.95 15.62 8.28 2.96 0.44	± ± ± ± ± ± ± ± = ± = ± = ± = ± = ± = ±	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792 1.018 $\langle p_{\rm T} \rangle$	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.7	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ \end{array}$	± ± ± ± ± ± ± ± d ² ±	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78 0.40 0.10 05 27/dpds 27.62	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794 1.014 $\langle p_{\rm T} \rangle$	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1 80.9	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 93.22 \\ \end{array}$	$ \begin{array}{c} \pm \\ \hline & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.21	± ± ± ± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792 1.018	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.7	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ \end{array}$	± ± ± ± ± ± ± d ² d ² ± ±	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78 0.40 0.10 05 27.62 4.02	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794 1.014 $\langle p_{\rm T} \rangle$ 0.145 0.179	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1 80.9	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 93.22 \\ 64.93 \\ \end{array}$	$ \begin{array}{c} \pm \\ \hline < 12 \\ d^2 \end{array} $	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}$	± ± ± ± ± ± ± ±	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792 1.018 $\langle p_{\rm T} \rangle$ 0.144 0.179 0.219	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.7 99.1 97.3 97.2	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline 05\\ \hline 27.62\\ 4.02\\ 3.28\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794 1.014 $\langle p_{\rm T} \rangle$ 0.145 0.179 0.219	$\begin{array}{c} 81.9 \\ 82.1 \\ 81.8 \\ 81.8 \\ 81.9 \\ 81.9 \\ 81.5 \\ 81.1 \\ 80.9 \\ \hline \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ \end{array}$	$ \begin{array}{c} \pm \\ \hline & \\ & \\ \hline & \\ & \\ & \\ & \\ & $	$\begin{array}{c} 3.63 \\ 2.58 \\ 2.08 \\ 1.78 \\ 1.39 \\ 0.96 \\ 0.63 \\ 0.27 \\ 0.06 \\ \hline \end{array}$	######################################	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11
0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.653 \\ 0.792 \\ 1.018 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.265 \\ \end{array} $	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.7 99.1 97.3 97.2 97.2	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline 05\\ \hline 27.62\\ 4.02\\ 3.28\\ 2.12\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794 1.014 (p _T) 0.145 0.179 0.219 0.267	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1 80.9 $\frac{\langle \theta \rangle}{114.7}$ 114.1 114.1 113.6	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06 0.25 σ/dpd 0.27 0.27 0.28 0.27 0.28	######################################	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 P _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.653 \\ 0.792 \\ 1.018 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.265 \\ 0.327 \\ \end{array} $	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.3 99.1 97.3 97.2 97.2	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ 30.57 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline 05\\ \hline 27.62\\ 4.02\\ 3.28\\ 2.12\\ 1.76\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21 13.47 4.47 2.70 1.63 1.44	$ \begin{array}{c} 0.180 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.390 \\ 0.458 \\ 0.544 \\ 0.655 \\ 0.794 \\ 1.014 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.328 \\ \end{array} $	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1 80.9 (\(\theta\)\) 114.7 114.1 113.6 113.4	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ 17.84 \\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.21 2.77 2.28 1.44 1.13	### ### ##############################	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20 1.08
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.653 \\ 0.792 \\ 1.018 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.265 \\ 0.327 \\ 0.389 \\ \end{array} $	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.3 99.1 97.3 97.2 97.2 96.7 97.2	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ 30.57 \\ 23.96 \\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline \\ \hline 0.5\\ \hline 27.62\\ 4.02\\ 4.02\\ 3.28\\ 2.12\\ 1.76\\ 1.57\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21 13.47 4.47 2.70 1.63 1.44 1.50	$ \begin{array}{c} 0.180 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.390 \\ 0.458 \\ 0.544 \\ 0.655 \\ 0.794 \\ 1.014 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ \end{array} $	81.9 82.1 81.8 81.8 81.9 81.9 81.5 81.1 80.9 (θ) 114.7 114.1 113.6 113.4 113.3	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ 17.84 \\ 11.25 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.21 2.77 2.28 1.44 1.13 0.91	### ### ##############################	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20 1.08 0.91
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.180 0.219 0.269 0.330 0.389 0.458 0.546 0.653 0.792 1.018 $\langle p_{\rm T} \rangle$ 0.144 0.179 0.219 0.265 0.327 0.389 0.459	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.3 99.1 97.3 97.2 97.2 97.2 97.1	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ 30.57 \\ 23.96 \\ 14.33 \\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline \begin{array}{c} 05\\ \hline \sigma/\mathrm{d}p\mathrm{d}S\\ 27.62\\ 4.02\\ 3.28\\ 2.12\\ 1.76\\ 1.57\\ 1.01\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21 13.47 4.47 2.70 1.63 1.44 1.50 1.11	0.180 0.220 0.267 0.328 0.390 0.458 0.544 0.655 0.794 1.014 (p _T) 0.145 0.179 0.219 0.267 0.328 0.388 0.460	81.9 82.1 81.8 81.9 81.9 81.5 81.1 80.9 (θ) 114.7 114.1 113.6 113.4 113.3 112.9	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ 17.84 \\ 11.25 \\ 6.47 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	$\begin{array}{c} 3.63 \\ 2.58 \\ 2.08 \\ 1.78 \\ 1.39 \\ 0.96 \\ 0.63 \\ 0.27 \\ 0.06 \\ \hline \\ 0.25 \\ \hline \\ \sigma/\mathrm{d}p\mathrm{d} \\ 4.21 \\ 2.77 \\ 2.28 \\ 1.44 \\ 1.13 \\ 0.91 \\ 0.60 \\ \end{array}$		3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20 1.08 0.91 0.69
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.653 \\ 0.792 \\ 1.018 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.265 \\ 0.327 \\ 0.389 \\ 0.459 \\ 0.545 \\ \hline \end{array} $	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.3 99.1 97.3 97.2 97.2 97.2 97.1 96.1	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ 30.57 \\ 23.96 \\ 14.33 \\ 7.90 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline \begin{array}{c} 0.5\\ \sigma/\mathrm{d}p\mathrm{d}S\\ \hline 27.62\\ 4.02\\ 3.28\\ 2.12\\ 1.76\\ 1.57\\ 1.01\\ 0.69\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21 13.47 4.47 2.70 1.63 1.44 1.50 1.11 0.85	$\begin{array}{c} 0.180 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.390 \\ 0.458 \\ 0.544 \\ 0.655 \\ 0.794 \\ 1.014 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.460 \\ 0.545 \\ \end{array}$	$\begin{array}{c} 81.9 \\ 82.1 \\ 81.8 \\ 81.8 \\ 81.9 \\ 81.9 \\ 81.5 \\ 81.1 \\ 80.9 \\ \hline \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.7 \\ 114.1 \\ 113.6 \\ 113.4 \\ 113.3 \\ 112.9 \\ 111.6 \\ \end{array}$	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ 17.84 \\ 11.25 \\ 6.47 \\ 2.47 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.63 \\ 2.58 \\ 2.08 \\ 1.78 \\ 1.39 \\ 0.96 \\ 0.63 \\ 0.27 \\ 0.06 \\ \hline 0.25 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.21 \\ 2.77 \\ 2.28 \\ 1.44 \\ 1.13 \\ 0.91 \\ 0.60 \\ 0.29 \\ \end{array}$	# # # # # # # # # # # # # # # # # # #	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20 1.08 0.91 0.69 0.38
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.653 \\ 0.792 \\ 1.018 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.265 \\ 0.327 \\ 0.389 \\ 0.459 \\ 0.545 \\ 0.648 \\ \end{array} $	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.7 99.1 97.2 97.2 97.2 97.1 96.1 96.3	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ 30.57 \\ 23.96 \\ 14.33 \\ 7.90 \\ 3.35 \\ \end{array}$	### ### #### #########################	4.24 3.63 2.83 2.64 2.16 1.68 1.32 0.78 0.40 0.10 0.5 27.62 4.02 3.28 2.12 1.76 1.57 1.01 0.69 0.37	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21 13.47 4.47 2.70 1.63 1.44 1.50 1.11 0.85 0.49	$\begin{array}{c} 0.180 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.390 \\ 0.458 \\ 0.544 \\ 0.655 \\ 0.794 \\ 1.014 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.460 \\ 0.545 \\ 0.644 \\ \end{array}$	$\begin{array}{c} 81.9 \\ 82.1 \\ 81.8 \\ 81.8 \\ 81.9 \\ 81.9 \\ 81.5 \\ 81.1 \\ 80.9 \\ \hline \\ \hline \\ \langle \theta \rangle \\ 114.7 \\ 114.1 \\ 113.6 \\ 113.4 \\ 113.3 \\ 112.9 \\ 111.6 \\ 112.1 \\ \end{array}$	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ 17.84 \\ 11.25 \\ 6.47 \\ 2.47 \\ 0.72 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.63 2.58 2.08 1.78 1.39 0.96 0.63 0.27 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.21 2.77 2.28 1.44 1.13 0.91 0.60 0.29 0.13	### ##################################	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20 1.08 0.91 0.69 0.38 0.16
0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.653 \\ 0.792 \\ 1.018 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.219 \\ 0.265 \\ 0.327 \\ 0.389 \\ 0.459 \\ 0.545 \\ \hline \end{array} $	67.1 67.2 66.9 67.2 67.0 66.7 66.3 66.3 66.3 99.1 97.3 97.2 97.2 97.2 97.1 96.1	$\begin{array}{c} 124.06 \\ 97.55 \\ 84.96 \\ 68.47 \\ 49.23 \\ 38.65 \\ 29.88 \\ 13.49 \\ 5.70 \\ 1.08 \\ \hline \\ 90 < \theta \\ \hline \\ 126.63 \\ 93.54 \\ 70.81 \\ 46.39 \\ 30.57 \\ 23.96 \\ 14.33 \\ 7.90 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 4.24\\ 3.63\\ 2.83\\ 2.64\\ 2.16\\ 1.68\\ 1.32\\ 0.78\\ 0.40\\ 0.10\\ \hline \begin{array}{c} 0.5\\ \sigma/\mathrm{d}p\mathrm{d}S\\ \hline 27.62\\ 4.02\\ 3.28\\ 2.12\\ 1.76\\ 1.57\\ 1.01\\ 0.69\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.06 4.00 2.95 2.72 1.70 1.75 1.83 1.13 0.68 0.21 13.47 4.47 2.70 1.63 1.44 1.50 1.11 0.85	$\begin{array}{c} 0.180 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.390 \\ 0.458 \\ 0.544 \\ 0.655 \\ 0.794 \\ 1.014 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.460 \\ 0.545 \\ \end{array}$	$\begin{array}{c} 81.9 \\ 82.1 \\ 81.8 \\ 81.8 \\ 81.9 \\ 81.9 \\ 81.5 \\ 81.1 \\ 80.9 \\ \hline \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.7 \\ 114.1 \\ 113.6 \\ 113.4 \\ 113.3 \\ 112.9 \\ 111.6 \\ \end{array}$	$\begin{array}{c} 88.79 \\ 66.27 \\ 43.14 \\ 32.58 \\ 25.95 \\ 15.62 \\ 8.28 \\ 2.96 \\ 0.44 \\ \hline \\ 105 < \theta \\ \hline \\ 93.22 \\ 64.93 \\ 47.37 \\ 27.75 \\ 17.84 \\ 11.25 \\ 6.47 \\ 2.47 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.63 \\ 2.58 \\ 2.08 \\ 1.78 \\ 1.39 \\ 0.96 \\ 0.63 \\ 0.27 \\ 0.06 \\ \hline 0.25 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.21 \\ 2.77 \\ 2.28 \\ 1.44 \\ 1.13 \\ 0.91 \\ 0.60 \\ 0.29 \\ \end{array}$	# # # # # # # # # # # # # # # # # # #	3.78 2.64 1.78 1.43 1.46 1.18 0.85 0.43 0.11 4.79 2.46 1.77 1.20 1.08 0.91 0.69 0.38

Table A.18: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^- + Cu $\to \pi^-$ + X interactions with -5.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1			$20 < \ell$	9 < 3	80					$30 < \theta$	< 4	0		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	24.9	281.13	±	10.60	\pm	21.53	0.116	34.8	266.41	±	10.06	±	19.95
0.13-0.16	0.147	24.8	317.36	\pm	10.11	\pm	18.81	0.146	34.9	245.92	\pm	8.80	\pm	14.63
0.16-0.20	0.181	24.7	358.09	\pm	9.21	\pm	18.51	0.181	34.7	278.72	\pm	7.89	\pm	13.83
0.20-0.24	0.221	24.8	347.49	\pm	8.74	\pm	14.29	0.221	34.7	269.49	\pm	7.68	\pm	11.28
0.24-0.30	0.271	25.0	322.00	\pm	6.93	\pm	11.17	0.272	34.7	252.74	\pm	6.05	\pm	8.48
0.30-0.36	0.332	24.9	279.91	\pm	6.37	\pm	8.00	0.331	34.8	219.62	\pm	5.63	\pm	6.27
0.36-0.42	0.393	24.8	210.43	\pm	5.56	\pm	6.37	0.393	34.8	182.87	\pm	5.11	\pm	5.32
0.42-0.50	0.464	24.9	170.61	\pm	4.36	\pm	6.44	0.464	34.9	145.00	\pm	3.97	\pm	5.12
0.50-0.60	0.557	24.9	102.63	\pm	2.93	\pm	5.22	0.556	34.7	91.84	\pm	2.79	\pm	4.52
0.60-0.72	0.669	24.9	69.26	\pm	2.24	\pm	4.96	0.666	34.5	56.08	\pm	1.97	\pm	3.88
0.72-0.90								0.818	34.8	28.95	\pm	1.20	\pm	2.84
			$40 < \theta$	9 < 5	50					$50 < \theta$	< 6	0		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	44.9	233.43	±	9.86	\pm	18.09							
0.13-0.16	0.146	45.1	222.45	\pm	8.38	\pm	13.37	0.146	55.0	211.47	\pm	8.47	\pm	13.05
0.16-0.20	0.180	44.9	232.21	\pm	7.15	\pm	11.63	0.180	55.0	193.16	\pm	6.54	\pm	9.60
0.20-0.24	0.221	44.8	225.81	\pm	7.02	\pm	9.71	0.221	54.9	181.49	\pm	6.28	\pm	7.67
0.24-0.30	0.272	44.8	197.92	\pm	5.34	\pm	6.67	0.272	55.0	146.53	\pm	4.56	\pm	4.89
0.30-0.36	0.332	44.9	173.39	\pm	5.00	\pm	4.99	0.332	54.7	124.65	\pm	4.27	\pm	3.78
0.36-0.42	0.393	44.8	155.14	\pm	4.82	\pm	5.06	0.393	55.0	106.56	\pm	3.97	\pm	3.56
0.42-0.50	0.464	44.7	111.74	\pm	3.50	\pm	4.18	0.464	54.8	77.54	\pm	2.91	\pm	3.08
0.50-0.60	0.555	45.0	72.41	\pm	2.50	\pm	3.79	0.554	54.8	53.10	\pm	2.15	\pm	2.92
0.60-0.72	0.669	44.8	39.90	\pm	1.67	\pm	2.94	0.668	54.8	28.47	\pm	1.45	\pm	2.18
0.72-0.90	0.818	44.8	20.95	\pm	1.03	\pm	2.20	0.814	54.7	15.13	\pm	0.88	\pm	1.63
0.90-1.25	İ							1.045	54.2	3.46	\pm	0.29	\pm	0.56
								1.043	37.2	3.40		0.27		0.00
			$60 < \theta$					1.043		$\frac{75 < \theta}{75}$	< 9	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d ²	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{ m T} angle$	$\langle \theta \rangle$	$75 < \theta$	< 9 d ²	$\frac{0}{\sigma/\mathrm{d}p\mathrm{d}s}$	Ω	
p _T 0.13–0.16	0.145	67.4	197.48	d ²	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.32}$	±	12.27	$\langle p_{\mathrm{T}} \rangle$ 0.144	⟨θ⟩ 80.6	$75 < \theta$ 222.11	< 9 d ² ±	$0 \\ \frac{2\sigma/\mathrm{d}p\mathrm{d}s}{59.84}$	Ω ±	22.46
p _T 0.13–0.16 0.16–0.20	0.145 0.180	67.4 67.4	197.48 164.06	d ² ± ±	$\frac{{}^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.32}$ 4.96	± ±	7.57	$\langle p_{\rm T} \rangle$ 0.144 0.180	(θ) 80.6 82.2	$75 < \theta$ 222.11 151.70	< 9 d ² ± ±	$\frac{0}{\sigma/dpd9}$ 59.84 5.15	Ω ± ±	22.46 7.52
<i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	0.145 0.180 0.219	67.4 67.4 66.9	197.48 164.06 141.42	# # #	$\frac{2\sigma/dpd\Omega}{7.32}$ 4.96 4.49	± ± ±	7.57 5.42	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219	⟨θ⟩ 80.6 82.2 82.2	$75 < \theta$ 222.11 151.70 128.37	< 90 d ² ± ± ± ± ±	$\frac{0}{2\sigma/dpd9}$ 59.84 5.15 4.54	12 ± ± ±	22.46 7.52 5.72
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.180 0.219 0.268	67.4 67.4 66.9 67.2	197.48 164.06 141.42 122.54	# # # #	7.32 4.96 4.49 3.49	± ± ±	7.57 5.42 4.25	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269	⟨θ⟩ 80.6 82.2 82.2 82.0	$75 < \theta$ 222.11 151.70 128.37 82.91	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	0 2σ/dpdΩ 59.84 5.15 4.54 2.88	12 ± ± ± ±	22.46 7.52 5.72 2.87
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.145 0.180 0.219 0.268 0.329	67.4 67.4 66.9 67.2 66.9	197.48 164.06 141.42 122.54 98.80	± ± ± ± ±	7.32 4.96 4.49 3.49 3.19	± ± ± ±	7.57 5.42 4.25 3.66	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329	$\langle \theta \rangle$ 80.6 82.2 82.2 82.0 81.9	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	0 2σ/dpd9 59.84 5.15 4.54 2.88 2.50	10 ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.180 0.219 0.268 0.329 0.388	67.4 67.4 66.9 67.2 66.9 67.1	197.48 164.06 141.42 122.54 98.80 75.27	# # # # # # #	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.32}$ 4.96 4.49 3.49 3.19 2.73	± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329 0.388	⟨θ⟩ 80.6 82.2 82.2 82.0 81.9 82.0	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{0}{2\sigma/dpd9}$ 59.84 5.15 4.54 2.88 2.50 2.12	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.180 0.219 0.268 0.329 0.388 0.458	67.4 67.4 66.9 67.2 66.9 67.1 66.7	197.48 164.06 141.42 122.54 98.80 75.27 51.13	# ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.32}$ $\frac{4.96}{4.49}$ $\frac{3.49}{3.19}$ $\frac{2.73}{1.92}$	± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329 0.388 0.459	⟨θ⟩ 80.6 82.2 82.2 82.0 81.9 82.0 81.9	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \hline 59.84\\ 5.15\\ 4.54\\ 2.88\\ 2.50\\ 2.12\\ 1.56 \\ \end{array}$	± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547	67.4 67.4 66.9 67.2 66.9 67.1 66.7	197.48 164.06 141.42 122.54 98.80 75.27 51.13 37.65	# # # # # # # # # # # # # # # # # # #	$\frac{2\sigma/dpd\Omega}{7.32}$ 4.96 4.49 3.49 3.19 2.73 1.92 1.50	± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329 0.388 0.459 0.544	(θ) 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma}{dpds}$ $\frac{59.84}{5.15}$ $\frac{4.54}{2.88}$ $\frac{2.50}{2.12}$ $\frac{1.56}{1.12}$	± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547 0.652	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7	197.48 164.06 141.42 122.54 98.80 75.27 51.13 37.65 21.26	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd\Omega}{7.32}$ 4.96 4.49 3.49 3.19 2.73 1.92 1.50 1.06	± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329 0.388 0.459 0.544 0.650	(θ) 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 59.84 \\ 5.15 \\ 4.54 \\ 2.88 \\ 2.50 \\ 2.12 \\ 1.56 \\ 1.12 \\ 0.74 \\ \end{array}$	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547 0.652 0.791	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 67.0 66.4	197.48 164.06 141.42 122.54 98.80 75.27 51.13 37.65 21.26 9.49	# # # # # # # # # # # # # # # # # # #	7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 1.06 0.58	± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329 0.388 0.459 0.544 0.650 0.788	80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3 82.1	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 59.84 \\ 5.15 \\ 4.54 \\ 2.88 \\ 2.50 \\ 2.12 \\ 1.56 \\ 1.12 \\ 0.74 \\ 0.30 \end{array}$	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547 0.652	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7	197.48 164.06 141.42 122.54 98.80 75.27 51.13 37.65 21.26 9.49 1.62	d ² ± ± ± ± ± ± ± ± ± ± ±	7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 0.58 0.15	± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91	$\langle p_{\rm T} \rangle$ 0.144 0.180 0.219 0.269 0.329 0.388 0.459 0.544 0.650	(θ) 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35	<pre>< 9 d² ±</pre>	59.84 59.84 5.15 4.54 2.88 2.50 2.12 1.56 1.12 0.74 0.30	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547 0.652 0.791 1.021	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 67.0 66.4 66.0	197.48 164.06 141.42 122.54 98.80 75.27 51.13 37.65 21.26 9.49	d ² ± ± ± ± ± ± ± ± ± ± ± ±	7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 1.06 0.58 0.15	± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \end{array}$	(\$\theta\$) 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3 82.1 81.5	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± = ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 59.84 \\ 5.15 \\ 4.54 \\ 2.88 \\ 2.50 \\ 2.12 \\ 1.56 \\ 1.12 \\ 0.74 \\ 0.30 \\ 0.06 \\ \hline \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547 0.652 0.791 1.021	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 67.0 66.4 66.0	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \end{array}$	d ² ± ± ± ± ± ± ± d ²	7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 0.58 0.15	± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29	$\begin{array}{c} \langle p_{\rm T} \rangle \\ \hline \langle p_{\rm T} \rangle \\ \hline 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ \hline \end{array}$	⟨θ⟩ 80.6 82.2 82.2 82.0 81.9 81.6 81.3 82.1 81.5 ⟨θ⟩	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$	< 9 d ² ± ± ± ± ± ± ± ± ± d ² < 1 d ²	0 59.84 5.15 4.54 2.88 2.50 2.12 1.56 1.12 0.74 0.30 0.06 25 2 σ/dpds	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.180 0.219 0.268 0.329 0.388 0.458 0.547 0.652 0.791 1.021 $\langle p_{\rm T} \rangle$ 0.147	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 67.0 66.4 66.0	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \hline \end{array}$	d^{2} \pm	7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 0.58 0.15 0.55 10.52	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29	$\begin{array}{c} \langle p_{\rm T} \rangle \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \end{array}$	$\langle \theta \rangle$ 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3 82.1 81.5	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	0 59.84 5.15 4.54 2.88 2.50 2.12 1.56 1.12 0.74 0.30 0.06 25 2 σ/dpds 5.94	10 ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 67.0 66.4 66.0 97.8 97.5	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \hline \end{array}$	d ² ± ± ± ± ± ± d ² < 10	7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 0.58 0.15 0.52 4.93	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 80.6 \\ 82.2 \\ 82.2 \\ 82.0 \\ 81.9 \\ 82.0 \\ 81.9 \\ 81.6 \\ 81.3 \\ 82.1 \\ 81.5 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.6 \\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	0 59.84 5.15 4.54 2.88 2.50 2.12 1.56 1.12 0.74 0.30 0.06 25 2 σ/dpd9 5.94 3.43	10 ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \hline \\ p_{\rm T}\rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 67.0 66.4 66.0 97.8 97.8 97.5	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \hline \\ 165.72 \\ 135.55 \\ 100.94 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} ?\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.32 \\ 4.96 \\ 4.49 \\ 3.49 \\ 3.19 \\ 2.73 \\ 1.92 \\ 1.50 \\ 0.15 \\ \hline 0.58 \\ 0.15 \\ \hline 0.5 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 4.93 \\ 3.98 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ \end{array}$	$\langle \theta \rangle$ 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3 82.1 81.5	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32		0 59.84 5.15 4.54 2.88 2.50 2.12 1.56 1.12 0.74 0.30 0.06 25 2σ/dpd9 5.94 3.43 2.59	10 ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \hline \\ p_{\rm T}\rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 66.4 66.0 (θ) 97.8 97.5 97.2 96.9	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \hline \\ 165.72 \\ 135.55 \\ 100.94 \\ 64.76 \\ \end{array}$	d ² ± ± ± ± ± ± ± d ² d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} ?\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.32 \\ 4.96 \\ 4.49 \\ 3.49 \\ 3.19 \\ 2.73 \\ 1.92 \\ 1.50 \\ 0.15 \\ \hline 05 \\ \hline 05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 10.52 \\ 4.93 \\ 3.98 \\ 2.54 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 80.6 \\ 82.2 \\ 82.2 \\ 82.0 \\ 81.9 \\ 82.0 \\ 81.9 \\ 81.6 \\ 81.3 \\ 82.1 \\ 81.5 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.6 \\ 114.1 \\ 114.1 \\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32 37.03	< 9 d ² ± ± ± ± ± ± ± ± d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	0 59.84 51.5 4.54 2.88 2.50 2.12 1.56 1.12 0.74 0.30 0.06 25 2 σ/dpd9 3.43 2.59 1.70	\(\frac{\pma}{2}\) \(\frac{\pma}{\pmu}\) \(\pma\) \(\pma\) \(\pma\) \(\pm\) \(22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.331 \\ \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 66.4 66.0 97.8 97.8 97.5 97.2 96.9 96.8	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \hline \\ 165.72 \\ 135.55 \\ 100.94 \\ 64.76 \\ 43.92 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} ?\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.32 \\ 4.96 \\ 4.49 \\ 3.49 \\ 3.19 \\ 2.73 \\ 1.92 \\ 1.50 \\ 0.05 \\ \hline 0.05 \\ 0.05 \\ \hline 0.05 \\ 0.05 \\ \hline 0.05 \\ $	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30 2.15	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ 0.327 \\ \end{array}$	$\langle \theta \rangle$ 80.6 82.2 82.2 82.0 81.9 82.0 81.9 81.6 81.3 82.1 81.5	$\begin{array}{c} 75 < \theta \\ \hline 222.11 \\ 151.70 \\ 128.37 \\ 82.91 \\ 61.09 \\ 44.66 \\ 32.37 \\ 20.29 \\ 10.31 \\ 3.02 \\ 0.35 \\ \hline \\ 105 < \theta \\ \hline \\ 154.33 \\ 96.19 \\ 59.32 \\ 37.03 \\ 25.50 \\ \hline \end{array}$	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \hline 0\\ \hline 59.84\\ 5.15\\ 4.54\\ 2.88\\ 2.50\\ 2.12\\ 1.56\\ 1.12\\ 0.74\\ 0.30\\ 0.06\\ \hline \\ \hline 25\\ \hline \sigma/dpdS\\ 5.94\\ 3.43\\ 2.59\\ 1.70\\ 1.40\\ \end{array}$	\(\frac{1}{2}\) \(\frac{1}\) \(\frac{1}{2}\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(\frac{1}2\) \(1	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.331 \\ 0.388 \\ \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 66.7 66.4 66.0 77.8 97.8 97.5 97.2 96.9 96.8 96.9	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 165.72 \\ 135.55 \\ 100.94 \\ 64.76 \\ 43.92 \\ 29.64 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.32}$ $\frac{4.96}{4.49}$ $\frac{3.49}{3.19}$ $\frac{2.73}{1.50}$ $\frac{1.50}{0.58}$ $\frac{0.5}{0.15}$ $\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{4.93}$ $\frac{3.98}{2.54}$ $\frac{2.12}{1.77}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30 2.15 1.97	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ 0.327 \\ 0.390 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 80.6 \\ 82.2 \\ 82.2 \\ 82.0 \\ 81.9 \\ 82.0 \\ 81.9 \\ 81.6 \\ 81.3 \\ 82.1 \\ 81.5 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.6 \\ 114.1 \\ 114.0 \\ 113.6 \\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32 37.03 25.50 13.68	$ \begin{array}{c} <9 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0\\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{59.84}\\ 5.15\\ 4.54\\ 2.88\\ 2.50\\ 2.12\\ 1.56\\ 1.12\\ 0.74\\ 0.30\\ 0.06\\ \hline 225\\ \frac{2\sigma}{\sigma/\mathrm{d}p\mathrm{d}S}\\ 5.94\\ 3.43\\ 2.59\\ 1.70\\ 1.40\\ 1.02\\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.331 \\ 0.388 \\ 0.458 \\ \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 67.0 66.4 66.0 97.8 97.5 97.2 96.9 96.8 96.9	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \hline \\ 165.72 \\ 135.55 \\ 100.94 \\ 64.76 \\ 43.92 \\ 29.64 \\ 20.47 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.32}$ $\frac{4.96}{4.49}$ $\frac{3.49}{3.19}$ $\frac{3.19}{2.73}$ $\frac{1.92}{1.50}$ $\frac{1.50}{0.58}$ $\frac{0.15}{0.15}$ $\frac{0.5}{0.15}$ $\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{4.93}$ $\frac{3.98}{2.54}$ $\frac{2.12}{1.77}$ $\frac{1.24}{1.24}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30 2.15 1.97 1.73	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ 0.327 \\ 0.390 \\ 0.454 \\ \hline \end{array}$	$ \begin{array}{ c c c c }\hline \langle\theta\rangle\\ \hline 80.6\\ 82.2\\ 82.2\\ 82.2\\ 82.0\\ 81.9\\ 82.0\\ 81.9\\ 81.6\\ 81.3\\ 82.1\\ 81.5\\ \hline \\\hline \\ \langle\theta\rangle\\ \hline \\ 114.4\\ 113.6\\ 114.1\\ 114.0\\ 113.6\\ 113.2\\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32 37.03 25.50 13.68 8.99	$\begin{array}{c} < 9 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0\\ \frac{2\sigma/\mathrm{d}p\mathrm{d}S}{59.84}\\ 5.15\\ 4.54\\ 2.88\\ 2.50\\ 2.12\\ 1.56\\ 1.12\\ 0.74\\ 0.30\\ 0.06\\ \hline 25\\ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}S}\\ 5.94\\ 3.43\\ 2.59\\ 1.70\\ 1.40\\ 1.02\\ 0.73\\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09 9.27 3.47 2.20 1.84 1.77 1.26 1.08
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.331 \\ 0.388 \\ 0.458 \\ 0.542 \\ \hline \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 67.0 66.4 66.0 97.8 97.5 97.2 96.9 96.8 97.2	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 43.55 \\ 100.94 \\ 64.76 \\ 43.92 \\ 29.64 \\ 20.47 \\ 11.33 \\ \end{array}$	d'a ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.32}$ $\frac{4.96}{4.49}$ $\frac{3.49}{3.19}$ $\frac{3.19}{2.73}$ $\frac{1.92}{1.50}$ $\frac{1.05}{2\sigma/\mathrm{d}p\mathrm{d}S}$ $\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{10.52}$ $\frac{2.05}{4.93}$ $\frac{3.98}{2.54}$ $\frac{2.12}{1.77}$ $\frac{1.24}{0.84}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30 2.15 1.97 1.73 1.31	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ 0.327 \\ 0.390 \\ 0.454 \\ 0.545 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 80.6 \\ 82.2 \\ 82.2 \\ 82.0 \\ 81.9 \\ 82.0 \\ 81.9 \\ 81.6 \\ 81.3 \\ 82.1 \\ 81.5 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.6 \\ 114.1 \\ 114.0 \\ 113.6 \\ 113.2 \\ 112.7 \\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32 37.03 25.50 13.68 8.99 4.22	<pre>< 9 d² ± T</pre>	$\begin{array}{c} 0 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 59.84 \\ 5.15 \\ 4.54 \\ 2.88 \\ 2.50 \\ 2.12 \\ 1.56 \\ 1.12 \\ 0.74 \\ 0.30 \\ 0.06 \\ \hline \\ 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.94 \\ 3.43 \\ 2.59 \\ 1.70 \\ 1.40 \\ 1.02 \\ 0.73 \\ 0.43 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09 9.27 3.47 2.20 1.84 1.77 1.26 1.08 0.67
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.331 \\ 0.388 \\ 0.458 \\ 0.542 \\ 0.651 \\ \hline \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 67.0 66.4 66.0 97.8 97.5 97.2 96.9 96.8 97.2 98.4	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 000000000000000000000000000000000000$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$P\sigma/dpdS$ 7.32 4.96 4.49 3.49 3.19 2.73 1.92 1.50 1.06 0.15 $P\sigma/dpdS$ 10.52 4.93 3.98 2.54 2.12 1.77 1.24 0.84 0.42	1 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30 2.15 1.97 1.73 1.31 0.56	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ 0.327 \\ 0.390 \\ 0.454 \\ 0.545 \\ 0.648 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 80.6 \\ 82.2 \\ 82.2 \\ 82.0 \\ 81.9 \\ 82.0 \\ 81.9 \\ 81.6 \\ 81.3 \\ 82.1 \\ 81.5 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.6 \\ 114.1 \\ 114.0 \\ 113.6 \\ 113.2 \\ 112.7 \\ 112.1 \\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32 37.03 25.50 13.68 8.99 4.22 0.83	<pre>< 9 d² ± T</pre>	$\begin{array}{c} 0 \\ \hline c \\ \sigma / \mathrm{d}p \mathrm{d}s \\ \hline 59.84 \\ 5.15 \\ 4.54 \\ 2.88 \\ 2.50 \\ 2.12 \\ 1.56 \\ 1.12 \\ 0.74 \\ 0.30 \\ 0.06 \\ \hline \\ \hline 25 \\ \sigma / \mathrm{d}p \mathrm{d}s \\ \hline 5.94 \\ 3.43 \\ 2.59 \\ 1.70 \\ 1.40 \\ 1.02 \\ 0.73 \\ 0.43 \\ 0.14 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09 9.27 3.47 2.20 1.84 1.77 1.26 1.08 0.67 0.19
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.458 \\ 0.547 \\ 0.652 \\ 0.791 \\ 1.021 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.331 \\ 0.388 \\ 0.458 \\ 0.542 \\ \hline \end{array} $	67.4 67.4 66.9 67.2 66.9 67.1 66.7 67.0 66.4 66.0 97.8 97.5 97.2 96.9 96.8 97.2	$\begin{array}{c} 197.48 \\ 164.06 \\ 141.42 \\ 122.54 \\ 98.80 \\ 75.27 \\ 51.13 \\ 37.65 \\ 21.26 \\ 9.49 \\ 1.62 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 43.55 \\ 100.94 \\ 64.76 \\ 43.92 \\ 29.64 \\ 20.47 \\ 11.33 \\ \end{array}$	d'a ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{7.32}$ $\frac{4.96}{4.49}$ $\frac{3.49}{3.19}$ $\frac{3.19}{2.73}$ $\frac{1.92}{1.50}$ $\frac{1.05}{2\sigma/\mathrm{d}p\mathrm{d}S}$ $\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{10.52}$ $\frac{2.05}{4.93}$ $\frac{3.98}{2.54}$ $\frac{2.12}{1.77}$ $\frac{1.24}{0.84}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.57 5.42 4.25 3.66 2.78 2.33 2.40 1.91 1.16 0.29 15.39 6.35 3.80 2.30 2.15 1.97 1.73 1.31	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.544 \\ 0.650 \\ 0.788 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.266 \\ 0.327 \\ 0.390 \\ 0.454 \\ 0.545 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 80.6 \\ 82.2 \\ 82.2 \\ 82.0 \\ 81.9 \\ 82.0 \\ 81.9 \\ 81.6 \\ 81.3 \\ 82.1 \\ 81.5 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 113.6 \\ 114.1 \\ 114.0 \\ 113.6 \\ 113.2 \\ 112.7 \\ \end{array} $	$75 < \theta$ 222.11 151.70 128.37 82.91 61.09 44.66 32.37 20.29 10.31 3.02 0.35 $105 < \theta$ 154.33 96.19 59.32 37.03 25.50 13.68 8.99 4.22	<pre>< 9 d² ± T</pre>	$\begin{array}{c} 0 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 59.84 \\ 5.15 \\ 4.54 \\ 2.88 \\ 2.50 \\ 2.12 \\ 1.56 \\ 1.12 \\ 0.74 \\ 0.30 \\ 0.06 \\ \hline \\ 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.94 \\ 3.43 \\ 2.59 \\ 1.70 \\ 1.40 \\ 1.02 \\ 0.73 \\ 0.43 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	22.46 7.52 5.72 2.87 2.40 2.08 1.95 1.68 1.14 0.45 0.09 9.27 3.47 2.20 1.84 1.77 1.26 1.08 0.67

Table A.19: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in p + Cu \rightarrow p + X interactions with +8.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta <$	30					$30 < \theta <$			
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	d	$^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.221	25.0	498.06 ±	11.13	\pm	27.02						
0.24-0.30	0.269	25.1	465.98 ±	8.62	\pm	22.48	0.270	35.0	536.91	9.51	\pm	23.67
0.30-0.36	0.329	25.1	395.20 ±	8.00	\pm	17.68	0.329	35.0	462.94	8.27	\pm	17.47
0.36-0.42	0.389	25.2	324.77 ±	7.24	\pm	14.03	0.389	35.2	390.95		\pm	14.33
0.42-0.50	0.458	25.1	288.49 ±	5.98	\pm	11.38	0.458	35.0	301.76		\pm	12.28
0.50-0.60	0.548	25.2	203.61 ±	4.44	\pm	9.01	0.547	35.0	229.10	4.80	\pm	9.91
0.60-0.72	0.655	25.1	149.29 ±	3.45	\pm	7.60	0.655	35.1	157.83	3.69	\pm	8.63
0.72-0.90							0.800	35.0	90.53	2.27	±	6.58
			$40 < \theta <$	50					$50 < \theta <$	60		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	d	$^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.329	45.1	493.97 ±	8.41	±	15.74						
0.36-0.42	0.389	45.1	$ 427.85 \pm$	8.00	\pm	12.40	0.388	55.2	426.30 =	10.76	\pm	12.35
0.42-0.50	0.458	45.0	$336.03 \pm$	6.22	\pm	10.76	0.458	55.0	344.27 =		\pm	9.66
0.50-0.60	0.547	45.0	245.16 ±	4.95	\pm	10.54	0.546	54.8	242.71 =		\pm	9.50
0.60-0.72	0.655	45.0	$162.78 \pm$	3.82	\pm	9.38	0.655	55.0	153.68		\pm	9.21
0.72-0.90	0.799	45.0	91.60 ±	2.36	\pm	7.02	0.800	55.0	82.99 =		\pm	6.87
0.90-1.25	1.035	45.0	$25.29 \pm$	0.89	\pm	3.01	1.036	54.8	22.02 =	0.85	±	2.85
			$60 < \theta <$						$75 < \theta <$			
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	c	$^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.547	67.4	233.04 ±	3.62	\pm	8.82						
0.60-0.72	0.654	67.0	137.23 ±	2.70	\pm	8.15	0.653	81.6	98.62		\pm	6.98
0.72-0.90	0.797	66.9	$63.50 \pm$	1.62	\pm	6.11	0.794	81.5	38.31 =		\pm	4.16
0.90-1.25	1.034	66.3	$15.98 \pm$	0.60	±	2.49	1.022	81.5	7.31 =	0.42	±	1.30
			$90 < \theta < 1$						$105 < \theta <$			
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	d	$^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$?		$\langle p_{\rm T} \rangle$	$\langle \theta \rangle$		$\mathrm{d}^2\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50							0.458	113.3	108.24 =	2.29	±	6.39
0.50-0.60							0.543	113.0	52.41	1.48	\pm	4.88
0.60-0.72	0.652	96.9	52.60 ±	1.57	\pm	4.68	0.651	112.9	19.16 =		\pm	2.76
0.72-0.90	0.792	96.8	18.58 ±	0.88	\pm	2.33	0.787	112.7	4.28	0.39	\pm	0.96
0.90-1.25	1.023	96.2	3.18 ±	0.28	\pm	0.61						

Table A.20: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in p + Cu $\to \pi^+$ + X interactions with +8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	$\theta < 3$	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	25.0	237.06	±	10.27	±	18.35	0.115	35.0	209.12	±	9.05	±	15.45
0.13-0.16	0.146	24.8	266.29	\pm	9.61	\pm	15.72	0.145	34.9	227.97	\pm	8.87	\pm	13.37
0.16-0.20	0.180	24.8	296.43	\pm	8.54	\pm	14.97	0.181	34.8	246.20	\pm	7.76	\pm	12.23
0.20-0.24	0.220	24.8	303.16	\pm	8.45	\pm	13.09	0.219	34.8	253.77	\pm	7.72	\pm	10.90
0.24-0.30	0.270	24.8	287.57	\pm	6.70	\pm	10.51	0.270	34.8	234.25	\pm	6.05	\pm	8.35
0.30-0.36	0.328	24.7	231.39	\pm	5.88	\pm	7.31	0.329	34.9	192.12	\pm	5.48	\pm	5.99
0.36-0.42	0.389	24.9	183.54	\pm	5.19	\pm	5.73	0.388	34.6	155.44	\pm	4.84	\pm	4.83
0.42-0.50	0.457	24.8	134.56	\pm	3.77	\pm	5.00	0.458	34.8	112.21	\pm	3.54	\pm	3.97
0.50-0.60	0.547	24.8	91.71	\pm	2.68	\pm	4.84	0.547	34.6	71.23	\pm	2.40	\pm	3.49
0.60-0.72	0.657	24.8	54.23	\pm	1.77	\pm	4.26	0.655	34.5	41.78	\pm	1.61	\pm	3.02
0.72-0.90								0.795	34.7	19.10	\pm	0.78	±	2.15
3112 317 3			$40 < \theta$) / 5	.0					$50 < \theta$			_	
	/m \	$\langle \theta \rangle$	40 < 0		$\frac{\partial \sigma}{\partial pd\theta}$	<u> </u>		/m \	$\langle \theta \rangle$	30 < 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}}$	0	
p_{T}	$\langle p_{\rm T} \rangle$	45.0	107.70		/ 1		14.52	$\langle p_{ m T} angle$	(0)		u	o / upu	. S Z	
0.10-0.13	0.116		186.79	±	9.04	±	14.53	0.145	55.0	15405		7.22		0.62
0.13-0.16	0.145	45.0	197.16	±	8.04	±	11.69	0.145	55.0	154.95	±	7.22	±	9.63
0.16-0.20	0.180	44.9	198.16	±	6.81	±	9.89	0.180	54.8	178.34	±	6.36	±	8.88
0.20-0.24	0.220	44.8	194.90	±	6.81	±	8.56	0.220	54.9	155.95	±	6.00	±	6.69
0.24-0.30	0.269	44.8	189.75	±	5.53	±	7.14	0.269	54.8	134.55	±	4.64	±	4.94
0.30-0.36	0.329	44.9	136.36	±	4.56	±	4.30	0.329	54.8	105.87	±	4.03	±	3.42
0.36-0.42	0.389	44.7	113.01	±	4.22	±	3.73	0.388	54.6	87.77	±	3.76	±	3.15
0.42-0.50	0.457	44.5	86.87	±	3.16	±	3.20	0.457	54.7	61.98	±	2.65	±	2.47
0.50-0.60	0.547	44.6	58.68	±	2.22	\pm	2.82	0.546	55.0	42.50	\pm	1.95	\pm	2.23
0.60-0.72	0.656	44.7	34.71	±	1.55	\pm	2.38	0.652	54.4	22.78	\pm	1.24	\pm	1.69
0.72-0.90	0.791	44.7	14.73	\pm	0.72	\pm	1.55	0.798	54.7	10.29	\pm	0.64	\pm	1.08
0.90–1.25								1.025	54.1	2.67	±	0.18	±	0.46
	/	(0)	60 < 6						(0)	$75 < \theta$				
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}s$		0.51	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$		10.20
0.13-0.16	0.146	67.0	138.52	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{5.99}$	±	8.71	0.148	82.0	108.21	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{6.60}$	\pm	10.39
0.13-0.16 0.16-0.20	0.146 0.180	67.0 67.6	138.52 129.58	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/dpd9}{5.99}$ 4.43	± ±	6.40	0.148 0.180	82.0 82.1	108.21 113.01	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{6.60}$ 4.18	± ±	5.41
0.13-0.16 0.16-0.20 0.20-0.24	0.146 0.180 0.218	67.0 67.6 67.1	138.52 129.58 126.27	# # #	$\frac{2\sigma/dpd9}{5.99}$ 4.43 4.35	± ± ±	6.40 5.23	0.148 0.180 0.219	82.0 82.1 82.2	108.21 113.01 108.13	d ² ± ± ±	$\frac{\sigma/dp}{6.60}$ 4.18 4.07	± ± ±	5.41 4.27
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.146 0.180 0.218 0.268	67.0 67.6 67.1 67.2	138.52 129.58 126.27 106.52	± ± ± ±	$\frac{2\sigma/dpd9}{5.99}$ 4.43 4.35 3.41	± ± ±	6.40 5.23 4.23	0.148 0.180 0.219 0.268	82.0 82.1 82.2 81.8	108.21 113.01 108.13 76.77	± ± ± ±	$\frac{\sigma/dpd}{6.60}$ 4.18 4.07 2.86	± ± ±	5.41 4.27 2.93
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.146 0.180 0.218 0.268 0.329	67.0 67.6 67.1 67.2 67.1	138.52 129.58 126.27 106.52 71.68	d ² ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{5.99}$ 4.43 4.35 3.41 2.75	± ± ± ±	6.40 5.23 4.23 2.33	0.148 0.180 0.219 0.268 0.328	82.0 82.1 82.2 81.8 82.0	108.21 113.01 108.13 76.77 53.40	d ² ± ± ± ± ± ±	$ \frac{\sigma/dpd}{6.60} $ 4.18 4.07 2.86 2.41	± ± ± ±	5.41 4.27 2.93 2.11
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.146 0.180 0.218 0.268 0.329 0.389	67.0 67.6 67.1 67.2 67.1 66.9	138.52 129.58 126.27 106.52 71.68 62.19	# # # # # # # # # # # # # # # # # # #	$\frac{2\sigma/dpd9}{5.99}$ 4.43 4.35 3.41 2.75 2.60	± ± ± ± ±	6.40 5.23 4.23 2.33 2.45	0.148 0.180 0.219 0.268 0.328 0.387	82.0 82.1 82.2 81.8 82.0 81.6	108.21 113.01 108.13 76.77 53.40 35.15	### ### ### ### ### ### ### ### ### ##	$\frac{\sigma/dpd}{6.60}$ 4.18 4.07 2.86 2.41 1.93	± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.180 0.218 0.268 0.329 0.389 0.459	67.0 67.6 67.1 67.2 67.1 66.9 67.0	138.52 129.58 126.27 106.52 71.68 62.19 44.79	# # # # # # # # # # # # # # # # # # #	$\frac{2\sigma/dpd9}{5.99}$ 4.43 4.35 3.41 2.75 2.60 1.87	± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03	0.148 0.180 0.219 0.268 0.328 0.387 0.458	82.0 82.1 82.2 81.8 82.0 81.6 81.7	108.21 113.01 108.13 76.77 53.40 35.15 27.08	### ### ### ### ### ### ### ### ### ##	σ/dpd 6.60 4.18 4.07 2.86 2.41 1.93 1.48	± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8	138.52 129.58 126.27 106.52 71.68 62.19 44.79 27.59	d ² ± ± ± ± ± ± ± ± ±	5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29	± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6	108.21 113.01 108.13 76.77 53.40 35.15 27.08 14.88	d ² ± ± ± ± ± ± ± ± ± ±	σ/dpd 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94	± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6	138.52 129.58 126.27 106.52 71.68 62.19 44.79 27.59 15.39	d ² ± ± ± ± ± ± ± ± ±	5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29 0.88	± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1	108.21 113.01 108.13 76.77 53.40 35.15 27.08 14.88 6.77	d ² ± ± ± ± ± ± ± ± ± ±	6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59	± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654 0.794	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6	138.52 129.58 126.27 106.52 71.68 62.19 44.79 27.59 15.39 5.37	d ² ± ± ± ± ± ± ± ± ± ±	5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29 0.88 0.37	± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658 0.792	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8	108.21 113.01 108.13 76.77 53.40 35.15 27.08 14.88 6.77 2.15	d ² ± ± ± ± ± ± ± ± ± ±	6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24	± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6	138.52 129.58 126.27 106.52 71.68 62.19 44.79 27.59 15.39 5.37 1.17	d ² ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \dpds \) 5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29 0.88 0.37 0.10	± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1	108.21 113.01 108.13 76.77 53.40 35.15 27.08 14.88 6.77 2.15 0.53	d ² ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08	± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654 0.794	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9	138.52 129.58 126.27 106.52 71.68 62.19 44.79 27.59 15.39 5.37	d ² ± ± ± ± ± ± ± ± ± ± ±	5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29 0.88 0.37 0.10	± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658 0.792 1.017	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9	108.21 113.01 108.13 76.77 53.40 35.15 27.08 14.88 6.77 2.15	d ² ± ± ± ± ± ± ± ± ± ± ±	6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08	± ± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654 0.794	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6	138.52 129.58 126.27 106.52 71.68 62.19 44.79 27.59 15.39 5.37 1.17		2 \(\sigma / \dpds \) 5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29 0.88 0.37 0.10 05	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658 0.792	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \end{array}$	$ \begin{array}{c} d^2 \\ \pm \\ 4 \end{array} $	σ/dpd 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08	± ± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654 0.794 1.019 $\langle p_{\rm T} \rangle$ 0.148	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ \end{array}$	d^{2} \pm	2 \(\sigma / \dpds \) 5.99 4.43 4.35 3.41 2.75 2.60 1.87 1.29 0.88 0.37 0.10 05 2 \(\sigma / \dpds \) 6.79	± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658 0.792 1.017	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \end{array}$		σ/dpd 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.59 0.24 0.08 25 σ/dpd 4.00	### ##################################	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.8	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ 90 < \theta \\ \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta \) \(\d	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \\ \hline \\$	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 $\langle \theta \rangle$ 114.8 114.4	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 25 $\sigma/\text{d}p\text{d}$ 4.00 2.68	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 (θ) 97.8 97.4 97.3	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ \end{array}$	d^{2} \pm	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.99 \\ 4.43 \\ 4.35 \\ 3.41 \\ 2.75 \\ 2.60 \\ 1.87 \\ 1.29 \\ 0.88 \\ 0.37 \\ 0.10 \\ \hline 0.5 \\ \hline 6.79 \\ 3.91 \\ 3.33 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23	0.148 0.180 0.219 0.268 0.328 0.387 0.458 0.548 0.658 0.792 1.017	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 25 $\sigma/\text{d}p\text{d}$ 4.00 2.68 2.38	# # # # # # # # # # # # # # # # # # #	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.8	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ 90 < \theta \\ \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta \) \(\d	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \\ \hline \\$	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 $\langle \theta \rangle$ 114.8 114.4	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \\ 92.59 \\ 67.80 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 25 $\sigma/\text{d}p\text{d}$ 4.00 2.68 2.38 1.56	# # # # # # # # # # # # # # # # # # #	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 (θ) 97.8 97.4 97.3	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ 106.28 \\ 97.87 \\ 76.11 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.99 \\ 4.43 \\ 4.35 \\ 3.41 \\ 2.75 \\ 2.60 \\ 1.87 \\ 1.29 \\ 0.88 \\ 0.37 \\ 0.10 \\ \hline 0.5 \\ \hline 6.79 \\ 3.91 \\ 3.33 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \hline \\ 0.144 \\ 0.179 \\ 0.218 \\ \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 (θ) 114.8 114.4 113.6	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \hline \\ 92.59 \\ 67.80 \\ 48.19 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 25 $\sigma/\text{d}p\text{d}$ 4.00 2.68 2.38	# # # # # # # # # # # # # # # # # # #	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12 5.17 3.07 1.85
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.8 97.3	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ 106.28 \\ 97.87 \\ 76.11 \\ 52.77 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.99 \\ 4.43 \\ 4.35 \\ 3.41 \\ 2.75 \\ 2.60 \\ 1.87 \\ 1.29 \\ 0.88 \\ 0.37 \\ 0.10 \\ \hline 0.5 \\ \hline 6.79 \\ 3.91 \\ 3.33 \\ 2.39 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23 9.97 4.44 2.87 2.07	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.267 \\ \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 (θ) 114.8 114.4 113.6 113.3	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \hline \\ 92.59 \\ 67.80 \\ 48.19 \\ 29.13 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 25 $\sigma/\text{d}p\text{d}$ 4.00 2.68 2.38 1.56	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12 5.17 3.07 1.85 1.36
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.8 97.3 97.3 96.6	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ 106.28 \\ 97.87 \\ 76.11 \\ 52.77 \\ 31.85 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.99 \\ 4.43 \\ 4.35 \\ 3.41 \\ 2.75 \\ 2.60 \\ 1.87 \\ 1.29 \\ 0.88 \\ 0.37 \\ 0.10 \\ \hline 0.5 \\ \hline 0.7 \\ dp\mathrm{d}9 \\ \hline 6.79 \\ 3.91 \\ 3.33 \\ 2.39 \\ 1.89 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23 9.97 4.44 2.87 2.07 1.61	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 (θ) 114.8 114.4 113.6 113.3 113.9	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \hline \\ 92.59 \\ 67.80 \\ 48.19 \\ 29.13 \\ 15.25 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 $\sigma/\text{d}p\text{d}$ 4.00 2.68 2.38 1.56 1.11	### ##################################	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12 5.17 3.07 1.85 1.36 0.99
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 77.8 97.8 97.3 97.3 96.6 96.5	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ \hline 106.28 \\ 97.87 \\ 76.11 \\ 52.77 \\ 31.85 \\ 21.77 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta \) \(\d	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23 9.97 4.44 2.87 2.07 1.61 1.40	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.386 \\ \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 80.8 80.9 (θ) 114.8 113.6 113.3 113.9 113.6	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 92.59 \\ 67.80 \\ 48.19 \\ 29.13 \\ 15.25 \\ 11.57 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 0.25 $\sigma/\text{d}p\text{d}$ 0.68 0.88 0.88 0.88 0.88 0.88 0.88	### ##################################	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12 5.17 3.07 1.85 1.36 0.99 1.01
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ 0.453 \\ \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.4 97.3 97.3 96.6 96.5 96.9	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 27.59 \\ 1.17 \\ \hline \\ 106.28 \\ 97.87 \\ 76.11 \\ 52.77 \\ 31.85 \\ 21.77 \\ 12.21 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta \) \(\d	### ##################################	6.40 5.23 4.23 2.33 2.45 2.03 1.72 1.33 0.66 0.23 9.97 4.44 2.87 2.07 1.61 1.40 1.01	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.386 \\ 0.453 \\ \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 (θ) 114.8 113.6 113.3 113.9 113.6 114.1	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \\ 92.59 \\ 67.80 \\ 48.19 \\ 29.13 \\ 15.25 \\ 11.57 \\ 5.49 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.59 0.24 0.08 $\sigma/\text{d}p\text{d}$ 4.00 2.68 2.38 1.56 1.11 0.97 0.55	### ##################################	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12 5.17 3.07 1.85 1.36 0.99 1.01 0.63
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.459 \\ 0.547 \\ 0.654 \\ 0.794 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ 0.453 \\ 0.543 \\ \hline \end{array} $	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.4 97.3 97.3 96.6 96.5 96.9	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 27.59 \\ 1.17 \\ \hline \\ 106.28 \\ 97.87 \\ 76.11 \\ 52.77 \\ 31.85 \\ 21.77 \\ 12.21 \\ 7.22 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta \) \(\d	# # # # # # # # # # # # # # # # # # #	9.97 4.44 2.87 2.07 1.40 1.01 0.81	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.386 \\ 0.453 \\ 0.536 \\ \hline \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 (θ) 114.8 113.6 113.3 113.9 113.6 114.1 111.3	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \hline \\ 92.59 \\ 67.80 \\ 48.19 \\ 29.13 \\ 15.25 \\ 11.57 \\ 5.49 \\ 2.51 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.59 0.24 0.08 0.55 $\sigma/\text{d}p\text{d}$ 0.69	# # # # # # # # # # # # # # # # # # #	5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.33 0.12 5.17 3.07 1.85 1.36 0.99 1.01 0.63 0.38
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.180 0.218 0.268 0.329 0.389 0.459 0.547 0.654 0.794 1.019 $\langle p_{\rm T} \rangle$ 0.148 0.180 0.219 0.268 0.328 0.390 0.453 0.543 0.649	67.0 67.6 67.1 67.2 67.1 66.9 67.0 66.8 66.6 66.1 65.9 97.8 97.3 97.3 96.6 96.5 96.9 96.1	$\begin{array}{c} 138.52 \\ 129.58 \\ 126.27 \\ 106.52 \\ 71.68 \\ 62.19 \\ 44.79 \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 27.59 \\ 15.39 \\ 5.37 \\ 1.17 \\ \hline \\ 106.28 \\ 97.87 \\ 76.11 \\ 52.77 \\ 31.85 \\ 21.77 \\ 12.21 \\ 7.22 \\ 3.44 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.99 \\ 4.43 \\ 4.35 \\ 3.41 \\ 2.75 \\ 2.60 \\ 1.87 \\ 1.29 \\ 0.88 \\ 0.37 \\ 0.10 \\ \hline \\ 0.5 \\ \hline \\ 0.7 \\ dp\mathrm{d}9 \\ \hline \\ 6.79 \\ 3.91 \\ 3.33 \\ 2.39 \\ 1.89 \\ 1.53 \\ 0.98 \\ 0.66 \\ 0.40 \\ \end{array}$		9.97 4.44 2.87 2.07 1.40 1.01 0.81 0.53	$ \begin{array}{c} 0.148 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.387 \\ 0.458 \\ 0.548 \\ 0.658 \\ 0.792 \\ 1.017 \\ \hline \\ \begin{array}{c} \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.267 \\ 0.327 \\ 0.386 \\ 0.453 \\ 0.536 \\ 0.646 \\ \end{array} $	82.0 82.1 82.2 81.8 82.0 81.6 81.7 81.6 81.1 80.8 80.9 (θ) 114.8 114.4 113.6 113.3 113.9 113.6 114.1 111.3	$\begin{array}{c} 108.21 \\ 113.01 \\ 108.13 \\ 76.77 \\ 53.40 \\ 35.15 \\ 27.08 \\ 14.88 \\ 6.77 \\ 2.15 \\ 0.53 \\ \hline \\ 105 < \theta \\ \\ 92.59 \\ 67.80 \\ 48.19 \\ 29.13 \\ 15.25 \\ 11.57 \\ 5.49 \\ 2.51 \\ 0.87 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.60 4.18 4.07 2.86 2.41 1.93 1.48 0.94 0.59 0.24 0.08 0.25 0.40 0.08 0.25 0.19		5.41 4.27 2.93 2.11 1.61 1.62 1.18 0.73 0.12 5.17 3.07 1.85 1.36 0.99 1.01 0.63 0.38 0.18

Table A.21: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in p + Cu $\to \pi^-$ + X interactions with +8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	0 < 3	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	24.9	257.38	±	10.30	\pm	19.92	0.116	34.9	220.14	±	9.23	±	16.98
0.13-0.16	0.145	25.0	277.00	\pm	9.65	\pm	16.60	0.145	34.8	240.77	\pm	8.92	\pm	14.54
0.16-0.20	0.180	24.9	305.58	\pm	8.54	\pm	15.60	0.180	34.7	242.05	\pm	7.50	\pm	12.15
0.20-0.24	0.220	24.8	281.02	\pm	8.06	\pm	12.19	0.220	34.8	225.27	\pm	7.08	\pm	9.61
0.24-0.30	0.269	25.0	241.69	\pm	6.04	\pm	8.36	0.269	34.9	199.75	\pm	5.47	\pm	6.93
0.30-0.36	0.329	24.9	181.16	\pm	5.20	\pm	5.44	0.328	34.9	165.46	\pm	5.01	\pm	5.00
0.36-0.42	0.389	25.0	136.01	\pm	4.53	\pm	4.31	0.388	34.9	127.47	\pm	4.29	\pm	4.04
0.42-0.50	0.457	24.9	92.28	\pm	3.18	\pm	3.55	0.457	35.0	92.15	\pm	3.19	\pm	3.48
0.50-0.60	0.546	25.0	59.55	\pm	2.27	\pm	3.16	0.547	34.9	52.66	\pm	2.12	\pm	2.73
0.60-0.72	0.654	25.2	33.99	\pm	1.59	\pm	2.52	0.656	35.1	28.52	\pm	1.41	\pm	2.06
0.72-0.90								0.794	34.9	15.54	\pm	0.85	\pm	1.58
			$40 < \theta$) < 5	50					$50 < \theta$	< 60)		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\frac{1}{\sigma/dpd\Omega}$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\frac{\mathrm{d}^2}{\mathrm{d}^2}$	$\frac{\sigma}{\sigma / \mathrm{d}p \mathrm{d}}$	Ω	
0.10-0.13	0.115	45.0	206.30	±	9.20	±	16.26	\I 1/	(* /			,		
0.13-0.16	0.145	45.2	218.91	\pm	8.56	\pm	13.43	0.146	55.0	170.13	\pm	7.45	\pm	10.79
0.16-0.20	0.180	44.9	190.37	\pm	6.50	\pm	9.65	0.180	54.9	164.47	\pm	6.06	\pm	8.34
0.20-0.24	0.220	44.9	202.87	\pm	6.85	\pm	8.79	0.219	54.8	155.81	\pm	6.04	\pm	6.89
0.24-0.30	0.269	44.9	154.58	\pm	4.83	\pm	5.40	0.269	54.7	139.10	\pm	4.65	\pm	5.14
0.30-0.36	0.329	44.7	135.36	\pm	4.57	\pm	4.33	0.329	54.8	101.40	\pm	3.89	\pm	3.26
0.36-0.42	0.389	44.7	105.74	\pm	3.93	\pm	3.49	0.389	54.9	78.32	\pm	3.54	\pm	3.09
0.42-0.50	0.458	44.8	77.24	\pm	2.94	\pm	3.09	0.460	54.9	55.61	\pm	2.46	\pm	2.38
0.50-0.60	0.546	44.9	47.22	\pm	2.02	\pm	2.60	0.545	54.7	29.23	\pm	1.54	\pm	1.72
0.60-0.72	0.654	44.8	23.42	\pm	1.22	\pm	1.89	0.651	54.9	17.80	\pm	1.14	\pm	1.43
0.72-0.90	0.795	44.7	10.67	\pm	0.70	\pm	1.16	0.794	54.6	8.23	\pm	0.61	\pm	0.92
0.90-1.25								1.016	54.7	1.84	\pm	0.20	\pm	0.32
			$60 < \theta$) < 7	' 5					$75 < \theta$	< 90)		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.13-0.16	0.145	67.2	149.06	\pm	6.08	\pm	9.04	0.147	81.7	124.75	\pm	7.96	\pm	9.67
0.16-0.20	0.179	67.4	140.77	\pm	4.65	\pm	6.67	0.180	81.8	116.52	\pm	4.31	\pm	5.39
0.20-0.24	0.221	67.2	122.47	\pm	4.29	\pm	4.87	0.219	82.2	99.30	\pm	3.93	\pm	3.92
0.24-0.30	0.267	67.3	99.45	\pm	3.22	\pm	3.52	0.268	82.0	65.13	\pm	2.60	\pm	2.33
0.30-0.36	0.328	67.2	74.86	\pm	2.82	\pm	2.76	0.327	82.2	49.87	\pm	2.32	\pm	2.20
0.36-0.42	0.389	67.1	55.64	\pm	2.39	\pm	2.12	0.389	81.7	34.34	\pm	1.90	\pm	1.74
0.42-0.50	0.457	66.8	37.69	\pm	1.66	\pm	1.81	0.458	81.6	21.62	\pm	1.28	\pm	1.37
0.50-0.60	0.543	66.6	23.56	\pm	1.16	\pm	1.54	0.542	81.4	11.88	\pm	0.82	\pm	1.02
0.60-0.72	0.654	67.2	12.77	\pm	0.76	\pm	1.15	0.656	82.1	5.19	\pm	0.48	\pm	0.60
0.72-0.90	0.795	67.1	4.66	±	0.37	\pm	0.58	0.796	80.9	2.48	±	0.27	\pm	0.39
0.90–1.25	1.032	66.4	0.89	±	0.11	±	0.17	1.005	81.6	0.37	±	0.07	±	0.09
			$90 < \theta$							$105 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$		
0.13-0.16	0.146	97.8	112.30	\pm	7.96	\pm	7.25	0.144	113.7	100.81	\pm	4.42	\pm	5.41
0.16-0.20	0.179	97.5	95.84	\pm	3.87	\pm	4.35	0.178	113.7	69.97	\pm	2.78	\pm	2.92
0.20-0.24	0.219	97.2	73.53	±	3.30	\pm	2.85	0.218	114.2	45.00	±	2.30	\pm	1.84
0.24-0.30	0.267	97.2	51.23	\pm	2.36	\pm	2.15	0.268	113.9	29.74	\pm	1.53	\pm	1.50
0.30-0.36	0.327	97.3	30.79	±	1.79	\pm	1.53	0.328	113.8	16.19	±	1.14	\pm	1.19
0.36-0.42	0.387	96.9	21.93	±	1.52	±	1.52	0.387	113.1	7.71	±	0.75	±	0.76
0.42-0.50	0.457	96.7	13.29	±	1.01	\pm	1.21	0.459	111.6	5.05	±	0.54	±	0.65
0.50-0.60	0.543	95.9	6.38	\pm	0.62	\pm	0.79	0.544	112.1	1.92	\pm	0.29	\pm	0.33
0.60-0.72	0.649	97.3	2.07	±	0.31	±	0.35	0.642	110.4	0.49	±	0.14	±	0.11
0.72-0.90	0.787 1.033	96.3	0.54	±	0.12	±	0.12	0.775	114.1	0.11	\pm	0.05	\pm	0.04
0.90-1.25		95.3	0.15	土	0.04	\pm	0.05	II.	I	1				

Table A.22: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^+ + Cu \to p + X interactions with +8.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta$							$30 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.20-0.24	0.220	25.1	416.01	\pm	14.70	\pm	22.76							
0.24-0.30	0.269	25.0	380.56	\pm	11.26	\pm	18.56	0.271	35.0	414.40	\pm	11.65	\pm	18.50
0.30-0.36	0.330	25.3	325.06	\pm	10.52	\pm	14.76	0.329	35.1	376.78	\pm	10.81	\pm	14.48
0.36-0.42	0.389	25.2	248.43	\pm	9.09	\pm	10.94	0.389	35.2	295.13	\pm	9.95	\pm	11.08
0.42-0.50	0.459	25.0	209.70	\pm	7.29	\pm	8.39	0.458	35.1	237.82	\pm	7.89	\pm	9.90
0.50-0.60	0.547	25.0	159.53	\pm	5.59	\pm	7.19	0.546	35.0	180.66	\pm	6.13	\pm	7.97
0.60-0.72	0.656	25.1	104.91	\pm	4.07	\pm	5.42	0.656	35.1	115.55	\pm	4.49	\pm	6.40
0.72-0.90								0.800	34.9	64.04	\pm	2.71	\pm	4.70
			$40 < \theta$) < 5	0					$50 < \theta$	< 6	0		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.30-0.36	0.329	45.0	421.26	\pm	11.22	\pm	13.74							
0.36-0.42	0.388	45.0	342.80	\pm	10.35	\pm	10.23	0.388	55.2	357.49	\pm	10.07	\pm	10.95
0.42-0.50	0.459	45.1	268.14	\pm	8.05	\pm	8.84	0.457	55.0	275.27	\pm	7.90	\pm	7.96
0.50-0.60	0.547	45.1	182.78	\pm	6.17	\pm	8.03	0.547	55.0	197.73	\pm	6.27	\pm	7.92
0.60-0.72	0.656	45.1	121.35	\pm	4.75	\pm	7.07	0.656	54.9	116.45	\pm	4.62	\pm	7.08
0.72-0.90	0.800	45.1	65.99	\pm	2.88	\pm	5.09	0.798	55.0	62.85	\pm	2.86	\pm	5.24
0.90–1.25	1.035	45.1	18.63	\pm	1.09	\pm	2.23	1.031	55.0	17.88	\pm	1.10	\pm	2.32
			$60 < \theta$	0 < 7	'5					$75 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.50-0.60	0.547	67.5	194.89	\pm	4.79	\pm	7.53							
0.60-0.72	0.653	67.2	110.16	\pm	3.50	\pm	6.61	0.652	81.7	82.15	\pm	2.85	\pm	5.84
0.72-0.90	0.796	67.2	51.24	\pm	2.11	\pm	4.97	0.797	82.0	31.84	\pm	1.62	\pm	3.48
0.90-1.25	1.031	66.4	12.91	\pm	0.78	\pm	2.02	1.014	81.9	6.94	\pm	0.59	\pm	1.24
			$90 < \theta$							$105 < \theta$	< 1	25		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.42-0.50								0.459	113.5	101.89	±	3.25	±	5.87
0.50-0.60								0.541	112.9	51.57	\pm	2.13	\pm	4.79
0.60-0.72	0.650	97.1	49.14	\pm	2.19	\pm	4.39	0.649	112.8	20.28	\pm	1.33	\pm	2.91
0.72-0.90	0.791	96.6	16.16	\pm	1.17	\pm	2.02	0.792	112.7	4.88	\pm	0.59	\pm	1.08
0.90-1.25	1.015	96.1	2.73	±	0.37	±	0.53							

Table A.23: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^+ + Cu $\to \pi^+$ + X interactions with +8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \ell$	$\theta < 3$	80					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	24.9	243.74	±	15.29	±	20.22	0.116	34.8	220.68	±	13.78	±	16.83
0.13-0.16	0.146	24.8	266.57	\pm	14.01	\pm	16.00	0.146	35.2	243.01	\pm	13.29	\pm	14.38
0.16-0.20	0.180	24.9	342.04	\pm	13.29	\pm	17.37	0.181	34.9	272.33	\pm	11.79	\pm	13.42
0.20-0.24	0.220	24.9	383.02	\pm	13.70	\pm	16.52	0.220	34.7	263.25	\pm	11.39	\pm	11.22
0.24-0.30	0.269	24.7	331.76	\pm	10.40	\pm	12.20	0.270	34.8	277.36	\pm	9.56	\pm	9.88
0.30-0.36	0.330	24.9	299.54	\pm	9.78	\pm	9.45	0.329	34.7	240.59	\pm	8.88	\pm	7.49
0.36-0.42	0.388	24.7	268.57	\pm	9.16	\pm	8.27	0.389	34.9	197.38	\pm	7.98	\pm	6.02
0.42-0.50	0.458	24.8	201.77	\pm	6.78	\pm	7.40	0.456	34.9	165.83	\pm	6.29	\pm	5.77
0.50-0.60	0.546	24.8	135.67	\pm	4.82	\pm	7.08	0.546	34.6	97.20	\pm	4.12	\pm	4.68
0.60-0.72	0.655	24.7	81.98	\pm	3.26	\pm	6.38	0.655	34.8	57.34	\pm	2.78	\pm	4.08
0.72-0.90								0.796	34.7	26.78	\pm	1.41	\pm	2.98
			$40 < \epsilon$	9 < 5	50					$50 < \theta$	< 60)		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	-5 \ 0		$\frac{\partial}{\partial \sigma} / \mathrm{d}p \mathrm{d}\Omega$	2		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		d^2	$\frac{\sigma}{\sigma / \mathrm{d}p \mathrm{d}\Omega}$	2	
0.10-0.13	0.115	45.0	187.94	±	13.28	±	14.93	\r 1 /	1.7			,rr		
0.13-0.16	0.115	44.9	199.96	±	11.75	±	11.85	0.145	55.3	161.49	\pm	10.76	\pm	10.03
0.16-0.20	0.180	44.7	233.11	\pm	10.73	\pm	11.55	0.181	54.8	179.80	\pm	9.30	\pm	8.88
0.20-0.24	0.220	44.7	215.75	\pm	10.73	±	9.32	0.220	54.9	182.75	\pm	9.40	\pm	7.70
0.24-0.30	0.269	44.7	202.02	\pm	8.26	\pm	7.58	0.270	54.7	158.13	\pm	7.27	\pm	5.76
0.30-0.36	0.330	44.7	162.21	\pm	7.21	\pm	5.08	0.329	54.6	122.90	\pm	6.30	\pm	3.93
0.36-0.42	0.389	44.5	133.61	\pm	6.70	\pm	4.40	0.390	54.8	106.52	\pm	6.03	\pm	3.84
0.42-0.50	0.457	44.5	107.36	\pm	5.14	\pm	3.89	0.457	54.8	76.71	\pm	4.29	\pm	3.00
0.50-0.60	0.546	44.6	71.02	\pm	3.55	\pm	3.36	0.546	54.8	52.02	\pm	3.14	\pm	2.67
0.60-0.72	0.658	44.5	45.14	\pm	2.61	\pm	3.04	0.657	54.6	29.62	\pm	2.08	\pm	2.15
0.72-0.90	0.793	44.4	19.51	\pm	1.23	\pm	2.02	0.799	54.6	13.06	\pm	1.06	\pm	1.35
0.90-1.25	0.775		17.01		1.20		2.02	1.018	54.6	3.45	\pm	0.33	\pm	0.59
			$60 < \theta$	9 < 7	'5				l	$75 < \theta$				
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.13-0.16	0.145	67.3	148.32	±	8.95	±	9.33	0.147	82.1	137.52	±	22.79	±	14.15
0.16-0.20	0.181	67.6	143.39	\pm	6.75	\pm	7.07	0.179	82.1	117.97	\pm	6.23	\pm	5.63
0.20-0.24	0.220	67.4	137.21	\pm	6.55	\pm	5.62	0.220	82.1	114.16	\pm	6.08	\pm	4.43
0.24-0.30		(7.0	123.57	\pm	5.34	\pm	4.90	0.267	81.5	81.40	\pm	4.25	\pm	3.06
	0.269	67.2	123.37											
0.30-0.36	0.269	66.9	86.08	\pm	4.36	\pm	2.81	0.328	81.7	54.00	\pm	3.51	\pm	2.12
0.30-0.36 0.36-0.42	1					土	2.81 2.79	1	81.7 81.6	54.00 36.47	± ±	3.51 2.88	± ±	2.12 1.64
	0.330	66.9	86.08	± ± ±	4.36 4.00 2.96			0.328		54.00 36.47 31.28	± ± ±			
0.36-0.42	0.330 0.388	66.9 67.4	86.08 69.35	\pm	4.00	\pm	2.79	0.328 0.387	81.6	36.47	\pm	2.88	\pm	1.64
0.36-0.42 0.42-0.50	0.330 0.388 0.458	66.9 67.4 66.8	86.08 69.35 53.17	$_{\pm}$	4.00 2.96	$_{\pm}$	2.79 2.38	0.328 0.387 0.454	81.6 81.8	36.47 31.28	士 士	2.88 2.32	$_{\pm}$	1.64 1.85
0.36-0.42 0.42-0.50 0.50-0.60	0.330 0.388 0.458 0.545	66.9 67.4 66.8 66.7	86.08 69.35 53.17 30.13	± ± ± ±	4.00 2.96 1.96	± ± ±	2.79 2.38 1.85	0.328 0.387 0.454 0.547	81.6 81.8 81.7	36.47 31.28 17.34 10.71 3.33	± ± ± ± ±	2.88 2.32 1.48	± ± ±	1.64 1.85 1.33
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.330 0.388 0.458 0.545 0.656	66.9 67.4 66.8 66.7 66.9	86.08 69.35 53.17 30.13 19.84 7.47 1.53	± ± ± ± ±	4.00 2.96 1.96 1.45 0.65 0.18	± ± ±	2.79 2.38 1.85 1.69	0.328 0.387 0.454 0.547 0.650	81.6 81.8 81.7 81.4	36.47 31.28 17.34 10.71 3.33 0.74	± ± ± ± ± ±	2.88 2.32 1.48 1.09 0.43 0.14	± ± ±	1.64 1.85 1.33 1.12
0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.330 0.388 0.458 0.545 0.656 0.792	66.9 67.4 66.8 66.7 66.9 66.4 66.1	86.08 69.35 53.17 30.13 19.84 7.47	± ± ± ± ±	4.00 2.96 1.96 1.45 0.65 0.18	± ± ± ±	2.79 2.38 1.85 1.69 0.91	0.328 0.387 0.454 0.547 0.650 0.780	81.6 81.8 81.7 81.4 81.4	36.47 31.28 17.34 10.71 3.33	± ± ± ± ± ±	2.88 2.32 1.48 1.09 0.43 0.14	± ± ± ±	1.64 1.85 1.33 1.12 0.49
0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.330 0.388 0.458 0.545 0.656 0.792 1.022	66.9 67.4 66.8 66.7 66.9 66.4	86.08 69.35 53.17 30.13 19.84 7.47 1.53	± ± ± ± ±	4.00 2.96 1.96 1.45 0.65 0.18	± ± ± ± ±	2.79 2.38 1.85 1.69 0.91	0.328 0.387 0.454 0.547 0.650 0.780 1.010	81.6 81.8 81.7 81.4 81.4	36.47 31.28 17.34 10.71 3.33 0.74	± ± ± ± ±	2.88 2.32 1.48 1.09 0.43 0.14	± ± ± ± ±	1.64 1.85 1.33 1.12 0.49
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.330 0.388 0.458 0.545 0.656 0.792	66.9 67.4 66.8 66.7 66.9 66.4 66.1	86.08 69.35 53.17 30.13 19.84 7.47 1.53	± ± ± ± ±	4.00 2.96 1.96 1.45 0.65 0.18	± ± ± ± ±	2.79 2.38 1.85 1.69 0.91	0.328 0.387 0.454 0.547 0.650 0.780	81.6 81.8 81.7 81.4 81.4 79.8	36.47 31.28 17.34 10.71 3.33 0.74	± ± ± ± ±	2.88 2.32 1.48 1.09 0.43 0.14	± ± ± ± ±	1.64 1.85 1.33 1.12 0.49
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.330 0.388 0.458 0.545 0.656 0.792 1.022	66.9 67.4 66.8 66.7 66.9 66.4 66.1	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline 90 < \theta \\ \end{array}$	± ± ± ± ± ± d ²	4.00 2.96 1.96 1.45 0.65 0.18 05	± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30	$egin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ \langle p_{\mathrm{T}} \rangle \\ \hline \end{array}$	81.6 81.8 81.7 81.4 81.4 79.8	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \end{array}$	± ± ± ± ± ± d ²	2.88 2.32 1.48 1.09 0.43 0.14 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$	± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16	0.330 0.388 0.458 0.545 0.656 0.792 1.022 $\langle p_{\rm T} \rangle$ 0.148	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \end{array} $ < 10 $ \begin{array}{c} d^2 \\ \hline \pm \\ \end{array} $	4.00 2.96 1.96 1.45 0.65 0.18 05 2 \sigma/dpd\(\frac{9}{2} \sigma/dpd\(\frac{9}{2} \sigma \frac{1}{2} \sig	± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30	$ \begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ \end{array} $	81.6 81.8 81.7 81.4 81.4 79.8 (θ)	$ \begin{array}{r} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline 105 < \theta \end{array} $	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline & \pm \end{array} $ $ \begin{array}{c} \pm \\ \pm \\ \hline & \pm \end{array} $	2.88 2.32 1.48 1.09 0.43 0.14 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.88	± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.330 \\ 0.388 \\ 0.458 \\ 0.545 \\ 0.656 \\ 0.792 \\ 1.022 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ \end{array} $	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5 97.7	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \end{array} $ < 10 $ \begin{array}{c} d^2 \\ \pm \\ \pm \end{array} $	4.00 2.96 1.96 1.45 0.65 0.18 05 7 / dpds 9.69 5.82	± ± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30	$ \begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ \end{array} $	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 91.63 \\ 75.27 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 12 \\ \hline d^2 \\ \pm \\ \pm \end{array}$	2.88 2.32 1.48 1.09 0.43 0.14 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.88 4.10	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	0.330 0.388 0.458 0.545 0.656 0.792 1.022 (p _T) 0.148 0.180 0.219	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5 97.7 96.7	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ \text{d}^2 \\ \pm \\ \pm \\ \end{array}$	4.00 2.96 1.96 1.45 0.65 0.18 05 2 \(\sigma/\text{d}p\text{d}\sigma} 9.69 5.82 5.00	± ± ± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96	$ \begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3 114.3	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 105 < \theta \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ 36.13 \\ \end{array}$	± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \\ \hline 5.88 \\ 4.10 \\ 3.76 \\ \end{array}$	± ± ± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.330 0.388 0.458 0.545 0.656 0.792 1.022 (p _T) 0.148 0.180 0.219 0.267	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5 97.7 96.7 96.9	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ 65.78 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ < 10 \\ d^2 \\ \pm \\ \pm \\ \pm \\ \pm \end{array}$	4.00 2.96 1.96 1.45 0.65 0.18 05 2 \(\sigma / \delta p \) \(\frac{2}{3}\) \(\frac{1}{3}\) \(\frac{2}{3}\) \(\frac{1}{3}\) \(\frac{2}{3}\) \(\frac{1}{3}\) \(\frac{2}{3}\) \(\frac{1}{3}\) \(\frac{1}\) \(\frac{1}{3}\) \(\frac{1}\) \(\frac{1}\) \(\frac{1}\) \(\frac{1}\) \(\frac{1}\) \(\frac{1}\) \(1	2 ± ± ± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96 2.55	$\begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	81.6 81.8 81.7 81.4 81.4 79.8 $\langle \theta \rangle$ 114.7 114.3 114.3 113.5	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 105 < \theta \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ \end{array}$	± ± ± ± ± d ²	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \hline 25 \\ \hline 5.88 \\ 4.10 \\ 3.76 \\ 2.52 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13 1.65
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	$\begin{array}{c} 0.330 \\ 0.388 \\ 0.458 \\ 0.545 \\ 0.656 \\ 0.792 \\ 1.022 \\ \hline \\ \hline \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.267 \\ 0.328 \\ \end{array}$	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5 97.7 96.7 96.9 96.7	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ 65.78 \\ 38.95 \\ 28.42 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ \text{d}^2 \\ \pm \\ \pm \\ \pm \\ \end{array}$	4.00 2.96 1.96 1.45 0.65 0.18 05 2\sigma/\delta pdG 9.69 5.82 5.00 3.85 3.04	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96 2.55 1.93	$\begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ \hline \\ 0.146 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ \end{array}$	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3 114.3 113.5 113.2 112.8	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 105 < \theta \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ 36.13 \\ 22.10 \\ 14.39 \\ \end{array}$	± ± ± ± ± d ² ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \\ \hline 25 \\ \hline 5.88 \\ 4.10 \\ 3.76 \\ 2.52 \\ 1.94 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13 1.65 1.37
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42	$ \begin{array}{c} 0.330 \\ 0.388 \\ 0.458 \\ 0.545 \\ 0.656 \\ 0.792 \\ 1.022 \\ \hline \\ \hline \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.389 \\ \end{array} $	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5 97.7 96.7 96.7 96.8	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ 65.78 \\ 38.95 \\ 28.42 \\ 18.17 \\ \end{array}$	± ± ± ± d ²	4.00 2.96 1.96 1.45 0.65 0.18 05 2\sigma/\delta pdS 9.69 5.82 5.00 3.85 3.04 2.54	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96 2.55 1.93 1.76	$\begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ \hline \\ 0.146 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.388 \\ \end{array}$	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3 114.3 113.5 113.2	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 105 < \theta \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ 36.13 \\ 22.10 \\ \end{array}$	± ± ± ± ± d ²	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \\ 25 \\ \hline 5.88 \\ 4.10 \\ 3.76 \\ 2.52 \\ 1.94 \\ 1.56 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13 1.65 1.37 1.20
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	$ \begin{array}{c} 0.330 \\ 0.388 \\ 0.458 \\ 0.545 \\ 0.656 \\ 0.792 \\ 1.022 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.389 \\ 0.458 \\ \end{array} $	66.9 67.4 66.8 66.7 66.9 66.4 66.1 (θ) 98.5 97.7 96.7 96.7 96.8 96.6	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ 65.78 \\ 38.95 \\ 28.42 \\ 18.17 \\ 8.31 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ d^2 \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \end{array}$	4.00 2.96 1.96 1.45 0.65 0.18 05 9.69 5.82 5.00 3.85 3.04 2.54 1.73	\(\frac{\pmu}{\pmu}\) \(\frac{\pmu}{\pmu}\) \(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\) \(\	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96 2.55 1.93 1.76 1.45	$\begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.388 \\ 0.460 \\ \end{array}$	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3 114.3 113.5 113.2 112.8 113.0	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 105 < \theta \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ 36.13 \\ 22.10 \\ 14.39 \\ 7.71 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \\ 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}9 \\ 5.88 \\ 4.10 \\ 3.76 \\ 2.52 \\ 1.94 \\ 1.56 \\ 0.94 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13 1.65 1.37 1.20 0.85
0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$ \begin{array}{c} 0.330 \\ 0.388 \\ 0.458 \\ 0.545 \\ 0.656 \\ 0.792 \\ 1.022 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.389 \\ 0.458 \\ 0.539 \\ \end{array} $	66.9 67.4 66.8 66.7 66.9 66.4 66.1 98.5 97.7 96.7 96.9 96.7 96.8 96.6 97.2	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ 65.78 \\ 38.95 \\ 28.42 \\ 18.17 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	4.00 2.96 1.96 1.45 0.65 0.18 05 2 \(\sigma \) \(\delta \) \(\delt	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96 2.55 1.93 1.76 1.45 0.90	$\begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ & \\ \hline \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ & \\ \\ \\ & \\ \\ \\ & \\$	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3 113.5 113.2 112.8 113.0 111.6	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ 36.13 \\ 22.10 \\ 14.39 \\ 7.71 \\ 3.00 \\ \end{array}$	$\begin{array}{cccc} & \pm & $	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \\ 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ 4.10 \\ 3.76 \\ 2.52 \\ 1.94 \\ 1.56 \\ 0.94 \\ 0.52 \\ \end{array}$	\frac{\pmu}{\pmu} \frac{\pmu}{	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13 1.65 1.37 1.20 0.85 0.44
0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.330 \\ 0.388 \\ 0.458 \\ 0.545 \\ 0.656 \\ 0.792 \\ 1.022 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.180 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.389 \\ 0.458 \\ 0.539 \\ 0.656 \\ \end{array} $	66.9 67.4 66.8 66.7 66.9 66.4 66.1 98.5 97.7 96.9 96.7 96.8 96.6 97.2 96.2	$\begin{array}{c} 86.08 \\ 69.35 \\ 53.17 \\ 30.13 \\ 19.84 \\ 7.47 \\ 1.53 \\ \hline \\ 90 < \theta \\ \hline \\ 109.23 \\ 101.65 \\ 80.71 \\ 65.78 \\ 38.95 \\ 28.42 \\ 18.17 \\ 8.31 \\ 3.66 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	4.00 2.96 1.96 1.45 0.65 0.18 05 2 \(\sigma/\delta p\delta \) 9.69 5.82 5.00 3.85 3.04 2.54 1.73 1.02 0.59	\frac{\pmu}{\pmu} \frac{\pmu}{	2.79 2.38 1.85 1.69 0.91 0.30 11.81 4.57 2.96 2.55 1.93 1.76 1.45 0.90 0.54	$\begin{array}{c} 0.328 \\ 0.387 \\ 0.454 \\ 0.547 \\ 0.650 \\ 0.780 \\ 1.010 \\ \hline \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ &$	81.6 81.8 81.7 81.4 81.4 79.8 (θ) 114.7 114.3 113.5 113.2 112.8 113.0 111.6 110.9	$\begin{array}{c} 36.47 \\ 31.28 \\ 17.34 \\ 10.71 \\ 3.33 \\ 0.74 \\ \hline \\ 105 < \theta \\ \hline \\ 91.63 \\ 75.27 \\ 57.08 \\ 36.13 \\ 22.10 \\ 14.39 \\ 7.71 \\ 3.00 \\ 0.88 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline \\ < 12 \\ d^2 \\ \pm \\ $	$\begin{array}{c} 2.88 \\ 2.32 \\ 1.48 \\ 1.09 \\ 0.43 \\ 0.14 \\ \hline \\ 25 \\ \hline \sigma/dpd0 \\ 5.88 \\ 4.10 \\ 3.76 \\ 2.52 \\ 1.94 \\ 1.56 \\ 0.94 \\ 0.52 \\ 0.29 \\ \end{array}$	\frac{\pmu}{\pmu} \frac{\pmu}{	1.64 1.85 1.33 1.12 0.49 0.16 4.84 3.38 2.13 1.65 1.37 1.20 0.85 0.44 0.17

Table A.24: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^+ + Cu $\to \pi^-$ + X interactions with +8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1 1			$20 < \ell$	9 < 3	80					$30 < \theta$	< 4	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$.7	
0.10-0.13	0.116	24.9	288.86	±	15.82	±	22.16	0.115	34.7	239.12	±	13.90	±	18.39
0.13-0.16	0.146	24.5	302.36	\pm	14.51	\pm	18.16	0.144	35.0	225.33	\pm	12.54	\pm	13.75
0.16-0.20	0.181	24.8	334.13	\pm	12.89	\pm	17.25	0.180	34.9	235.80	\pm	10.67	\pm	11.87
0.20-0.24	0.221	24.9	297.00	\pm	11.98	\pm	12.99	0.220	34.7	230.91	\pm	10.38	\pm	9.85
0.24-0.30	0.269	24.9	266.63	\pm	9.12	\pm	9.28	0.269	34.9	205.35	\pm	7.97	\pm	7.14
0.30-0.36	0.329	24.7	212.58	\pm	8.11	\pm	6.37	0.329	34.9	184.82	\pm	7.65	\pm	5.57
0.36-0.42	0.389	24.9	185.08	\pm	7.60	\pm	5.76	0.389	34.8	141.38	\pm	6.52	\pm	4.41
0.42-0.50	0.459	24.7	117.39	\pm	5.16	\pm	4.44	0.458	34.9	100.95	\pm	4.83	\pm	3.76
0.50-0.60	0.545	24.9	84.77	\pm	3.90	\pm	4.42	0.546	34.8	64.76	\pm	3.39	\pm	3.31
0.60-0.72	0.652	24.8	42.72	\pm	2.56	\pm	3.12	0.655	35.2	35.32	\pm	2.27	\pm	2.52
0.72-0.90								0.796	35.1	18.16	\pm	1.33	\pm	1.83
			$40 < \theta$) < 5	50					$50 < \theta$	< 6	<u> </u>		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$	10 \ 0		$\frac{\partial}{\partial \sigma/\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$	00 (0		$\frac{\sigma}{2\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2	
0.10-0.13	0.115	44.9	183.98	±	12.56	±	14.46	\P 1 /	(0)			o / apai		
0.10-0.15	0.115	45.3	193.67	±	11.62	士	11.88	0.146	55.1	163.62	\pm	10.50	\pm	10.36
0.15-0.10	0.143	44.5	196.70	±	9.45	士	9.99	0.179	55.0	154.26	±	8.46	±	7.82
0.10-0.20	0.180	44.8	161.97	±	8.79	\pm	7.04	0.179	54.8	147.25	±	8.51	\pm	6.52
0.20-0.24	0.220	44.7	166.09	±	7.23	\pm	5.82	0.219	54.7	136.54	±	6.67	±	5.11
0.24-0.30	0.270	44.9	129.79	±	6.47	土	4.19	0.208	55.0	98.85	±	5.59	±	3.17
0.36-0.42	0.327	44.7	107.84	±	5.75	士	3.52	0.328	54.4	83.79	±	5.28	\pm	3.31
0.42-0.50	0.460	44.8	74.84	±	4.18	士	2.96	0.367	54.8	57.38	±	3.63	\pm	2.43
0.50-0.60	0.543	44.7	49.99	±	3.00	士	2.72	0.548	54.7	35.37	±	2.45	\pm	2.06
0.50-0.00	0.655	44.6	19.79	±	1.61	±	1.58	0.651	55.3	19.00	±	1.70	±	1.50
0.72-0.90	0.033	44.6	11.29	±	1.04	±	1.21	0.031	54.5	8.41	±	0.89	±	0.93
0.72-0.90	0.798	44.0	11.29		1.04		1.21	1.023	54.5	2.28	±	0.32	±	0.39
0.90-1.23			I						1 34.3			0.32		0.39
			20 . (1					_	
	/nm\	/A\	$60 < \theta$)				$75 < \theta$	< 9	0		
$p_{ m T}$	$\langle p_{\rm T} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		8 80	$\langle p_{ m T} angle$	$\langle \theta \rangle$	$75 < \theta$	< 9 d ²	$\frac{0}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	Ω	
p _T 0.13-0.16	0.146	67.4	147.25	d ²	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{8.88}$	±	8.89	$\langle p_{\mathrm{T}} \rangle$ 0.146	(θ) 81.5	$75 < \theta$ 115.92	< 9 d ² ±	$0 \frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.95}$	Ω ±	8.79
p _T 0.13–0.16 0.16–0.20	0.146 0.179	67.4 67.2	147.25 145.21	# ±	$\frac{{}^2\sigma/\mathrm{d}p\mathrm{d}9}{8.88}$ 6.78	± ±	6.88	$\langle p_{\rm T} \rangle$ 0.146 0.178	(θ) 81.5 82.0	$75 < \theta$ 115.92 113.15	< 9 d ² ± ±	$ \begin{array}{c} 0 \\ 2\sigma/\mathrm{d}p\mathrm{d}\Omega \\ 9.95 \\ 6.13 \end{array} $	Ω ± ±	8.79 5.23
<i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	0.146 0.179 0.219	67.4 67.2 66.8	147.25 145.21 121.84	# # #	$\frac{2\sigma/dpd9}{8.88}$ 6.78 6.14	± ± ±	6.88 4.84	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220	(θ) 81.5 82.0 82.1	$75 < \theta$ 115.92 113.15 98.13	< 90 d ² ± ± ± ± ±	$\frac{0}{2\sigma/dpd\Omega}$ 9.95 6.13 5.63	Ω ± ± ±	8.79 5.23 3.89
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.146 0.179 0.219 0.268	67.4 67.2 66.8 67.1	147.25 145.21 121.84 97.50	± ± ± ±	$\frac{^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega}{8.88}$ 6.78 6.14 4.59	± ± ±	6.88 4.84 3.49	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267	⟨θ⟩ 81.5 82.0 82.1 82.1	$75 < \theta$ 115.92 113.15 98.13 62.83	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{r} 0 \\ \hline 9.95 \\ 6.13 \\ 5.63 \\ 3.68 \end{array} $	Ω ± ± ± ±	8.79 5.23 3.89 2.24
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.146 0.179 0.219 0.268 0.329	67.4 67.2 66.8 67.1 66.9	147.25 145.21 121.84 97.50 72.28	d ² ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{8.88}$ 6.78 6.14 4.59 4.01	± ± ± ±	6.88 4.84 3.49 2.66	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328	$\langle \theta \rangle$ 81.5 82.0 82.1 82.1 82.1	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	0 2σ/dpdΩ 9.95 6.13 5.63 3.68 3.47	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.146 0.179 0.219 0.268 0.329 0.390	67.4 67.2 66.8 67.1 66.9 67.0	147.25 145.21 121.84 97.50 72.28 51.60	d ² ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{8.88}$ $\frac{6.78}{6.14}$ $\frac{4.59}{4.01}$ $\frac{3.31}{6.38}$	± ± ± ± ±	6.88 4.84 3.49 2.66 1.95	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387	$\langle \theta \rangle$ 81.5 82.0 82.1 82.1 82.1 82.2	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.95 6.13 5.63 3.68 3.47 3.02	Ω ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.179 0.219 0.268 0.329 0.390 0.457	67.4 67.2 66.8 67.1 66.9 67.0 67.2	147.25 145.21 121.84 97.50 72.28 51.60 40.60	# # # # # # # # # # # # # # # # # # #	$\frac{2\sigma/dpd9}{8.88}$ 6.78 6.14 4.59 4.01 3.31 2.50	± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387 0.456	$\langle \theta \rangle$ 81.5 82.0 82.1 82.1 82.1 82.2 81.9	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{c} 0 \\ \hline 9.95 \\ 6.13 \\ 5.63 \\ 3.68 \\ 3.47 \\ 3.02 \\ 2.09 \end{array} $	10 ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.179 0.219 0.268 0.329 0.390 0.457 0.544	67.4 67.2 66.8 67.1 66.9 67.0 67.2	147.25 145.21 121.84 97.50 72.28 51.60 40.60 24.24	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpds}{8.88}$ $\frac{6.78}{6.14}$ $\frac{4.59}{4.01}$ $\frac{3.31}{2.50}$ $\frac{1.71}{6.12}$	± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387 0.456 0.543	(θ) 81.5 82.0 82.1 82.1 82.1 82.2 81.9 81.8	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{c} 0 \\ \hline 9.95 \\ 6.13 \\ 5.63 \\ 3.68 \\ 3.47 \\ 3.02 \\ 2.09 \\ 1.25 \end{array} $	Ω ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.179 0.219 0.268 0.329 0.390 0.457 0.544 0.649	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7	147.25 145.21 121.84 97.50 72.28 51.60 40.60 24.24 13.53	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpds}{8.88}$ $\frac{6.78}{6.14}$ $\frac{4.59}{4.01}$ $\frac{3.31}{2.50}$ $\frac{1.71}{1.14}$	± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387 0.456 0.543 0.655	(θ) 81.5 82.0 82.1 82.1 82.1 82.2 81.9 81.8 81.7	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{c} 0 \\ \hline 9.95 \\ 6.13 \\ 5.63 \\ 3.68 \\ 3.47 \\ 3.02 \\ 2.09 \\ 1.25 \\ 0.70 \end{array} $	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.146 0.179 0.219 0.268 0.329 0.390 0.457 0.544 0.649 0.794	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0	147.25 145.21 121.84 97.50 72.28 51.60 40.60 24.24 13.53 5.01	d ² ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma}{\mathrm{dpds}}$ 8.88 6.78 6.14 4.59 4.01 3.31 2.50 1.71 1.14 0.55	± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387 0.456 0.543 0.655 0.784	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ \end{array} $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.95 6.13 5.63 3.68 3.47 3.02 2.09 1.25 0.70 0.37	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.179 0.219 0.268 0.329 0.390 0.457 0.544 0.649	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7	147.25 145.21 121.84 97.50 72.28 51.60 40.60 24.24 13.53 5.01 1.03	d ² ± ± ± ± ± ± ± ± ± ±	8.88 6.78 6.14 4.59 4.01 3.31 2.50 1.71 1.14 0.55	± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387 0.456 0.543 0.655	(θ) 81.5 82.0 82.1 82.1 82.1 82.2 81.9 81.8 81.7	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49	<pre>< 9 d² ±</pre>	9.95 6.13 5.63 3.68 3.47 3.02 2.09 1.25 0.70 0.37 0.12	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.146 0.179 0.219 0.268 0.329 0.390 0.457 0.544 0.649 0.794 1.017	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3	147.25 145.21 121.84 97.50 72.28 51.60 40.60 24.24 13.53 5.01	d ² ± ± ± ± ± ± ± ± ± ± =	8.88 6.78 6.14 4.59 4.01 3.31 2.50 1.71 1.14 0.55 0.17	* * * * * * * * * * * * *	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \end{array}$	(\(\theta\)) 81.5 82.0 82.1 82.1 82.1 82.2 81.9 81.8 81.7 81.6 80.6	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± = ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \hline 0\\ \hline 0\\ \hline 9.95\\ 6.13\\ 5.63\\ 3.68\\ 3.47\\ 3.02\\ 2.09\\ 1.25\\ 0.70\\ 0.37\\ 0.12\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \langle p_{\rm T} \rangle \\ \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \end{array}$	d ² ± ± ± ± ± ± ± d ²	8.88 6.78 6.14 4.59 4.01 3.31 2.50 1.71 1.14 0.55 0.17	± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19	$\langle p_{\rm T} \rangle$ 0.146 0.178 0.220 0.267 0.328 0.387 0.456 0.543 0.655 0.784 1.023	$\langle \theta \rangle$ 81.5 82.0 82.1 82.1 82.1 82.2 81.9 81.8 81.7 81.6 80.6	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$	< 9 d ² ± ± ± ± ± ± ± ± ± d ² < 1 d ²	$\begin{array}{c} 0 \\ \hline 0 \\ 0 \\$	Ω ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ \end{array}$	\(\frac{d^2}{\pmu}\)	8.88 6.78 6.14 4.59 4.01 3.31 2.50 1.71 1.14 0.55 0.17	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ 113.8 \\ \end{array} $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \hline 0\\ $	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.88 6.78 6.14 4.59 4.01 3.31 2.50 1.71 1.14 0.55 0.17 05 8.29 5.61	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ \hline 113.8 \\ 114.0 \\ \end{array} $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 0 \\ \hline 0 \\ \hline 0.0000000000000$	1	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.220 \\ \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3 (θ) 97.8 97.7 96.9	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline \\ 0.5 \\ \hline \\ 0.65 \\ 0.65 \\ \hline \\ 0.65 \\ 0.65 \\ \hline \\ 0.65 \\ 0.65 \\ \hline 0.65 \\ \hline \\ 0.65 \\ \hline 0.65 \\ \hline \\ 0.65 \\ \hline \\ 0.65 \\ \hline 0.65 \\ 0.65 \\ \hline 0.65 \\ 0.65 \\ \hline 0.65$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ 113.8 \\ 114.0 \\ 113.7 \\ \end{array} $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61 50.56		$\begin{array}{c} 0 \\ \hline 0 \\ \hline 0 \\ \hline 0 \\ \hline 0.0000000000000$	1	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.220 \\ 0.270 \\ \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3 (θ) 97.8 97.7 96.9 97.4	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline \\ 0.5 \\ \hline \\ 0.65 \\ \hline \\ 8.29 \\ 5.61 \\ 4.50 \\ 3.33 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ 113.8 \\ 114.0 \\ 113.7 \\ 113.8 \\ \end{array} $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61 50.56 25.20	< 9 d ² ± ± ± ± ± ± ± ± d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 0 \\ \hline 0 \\ \hline 0.0000000000000000000$	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 97.8 97.8 97.7 96.9 97.4 97.0	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ 28.73 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline \\ 0.5 \\ \hline \\ 0.5 \\ \hline \\ 0.61 \\ \hline \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.17 \\ 0.55 \\ 0.$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06 1.41	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.330 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \langle \theta \rangle \\ 113.8 \\ 114.0 \\ 113.7 \\ 113.8 \\ 113.1 \\ \end{array} $	$\begin{array}{c} 75 < \theta \\ \hline 115.92 \\ 113.15 \\ 98.13 \\ 62.83 \\ 53.49 \\ 41.12 \\ 27.74 \\ 13.21 \\ 5.17 \\ 2.14 \\ 0.49 \\ \hline \hline 105 < \theta \\ \hline 85.80 \\ 64.61 \\ 50.56 \\ 25.20 \\ 21.06 \\ \hline \end{array}$	< 9 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0\\ \hline 0\\ 9.95\\ 6.13\\ 5.63\\ 3.68\\ 3.47\\ 3.02\\ 2.09\\ 1.25\\ 0.70\\ 0.37\\ 0.12\\ \hline \\ 25\\ \hline \sigma/\mathrm{d}p\mathrm{d}S\\ \hline 5.92\\ 3.86\\ 3.54\\ 2.05\\ 1.91\\ \hline \end{array}$	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \hline \\ 0.146 \\ 0.179 \\ 0.220 \\ 0.270 \\ 0.330 \\ 0.387 \\ \hline \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.3 97.8 97.8 97.7 96.9 97.4 97.0 96.8	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ 28.73 \\ 22.31 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline 0.5 \\ \hline 0.5 \\ 0.5 \\ 6.61 \\ 4.50 \\ 3.33 \\ 2.51 \\ 2.23 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06 1.41 1.52	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.330 \\ 0.384 \\ \end{array}$	$ \begin{array}{ c c c }\hline \langle\theta\rangle\\ \hline 81.5\\ 82.0\\ 82.1\\ 82.1\\ 82.2\\ 81.9\\ 81.8\\ 81.7\\ 81.6\\ 80.6\\ \hline \\\hline \\ \langle\theta\rangle\\ \hline \\ 113.8\\ 114.0\\ 113.7\\ 113.8\\ 113.1\\ 112.5\\ \end{array} $	$\begin{array}{c} 75 < \theta \\ \hline 115.92 \\ 113.15 \\ 98.13 \\ 62.83 \\ 53.49 \\ 41.12 \\ 27.74 \\ 13.21 \\ 5.17 \\ 2.14 \\ 0.49 \\ \hline \\ 105 < \theta \\ \hline \\ 85.80 \\ 64.61 \\ 50.56 \\ 25.20 \\ 21.06 \\ 10.51 \\ \hline \end{array}$	$ \begin{array}{c} <9 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0\\ \hline 0\\ 2\sigma/\mathrm{d}p\mathrm{d}S\\ \hline 9.95\\ 6.13\\ 5.63\\ 3.68\\ 3.47\\ 3.02\\ 2.09\\ 1.25\\ 0.70\\ 0.37\\ 0.12\\ \hline 25\\ 2\sigma/\mathrm{d}p\mathrm{d}S\\ \hline 5.92\\ 3.86\\ 3.54\\ 2.05\\ 1.91\\ 1.28\\ \end{array}$	\(\Omega\) \(\perp\) \(\pe	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.146 \\ 0.179 \\ 0.220 \\ 0.270 \\ 0.330 \\ 0.387 \\ 0.457 \\ \hline \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3 97.8 97.7 96.9 97.4 97.0 96.8 96.6	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ 28.73 \\ 22.31 \\ 18.40 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.5 \\ 8.29 \\ 5.61 \\ 4.50 \\ 3.33 \\ 2.51 \\ 2.23 \\ 1.73 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06 1.41 1.52 1.63	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.330 \\ 0.384 \\ 0.451 \\ \hline \end{array}$	$ \begin{array}{ c c c c }\hline \langle\theta\rangle\\ \hline 81.5\\ 82.0\\ 82.1\\ 82.1\\ 82.1\\ 82.2\\ 81.9\\ 81.8\\ 81.7\\ 81.6\\ 80.6\\ \hline \\ \hline$	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61 50.56 25.20 21.06 10.51 5.83	$\begin{array}{c} < 9 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0\\ \hline 0\\ 2\sigma/\mathrm{d}p\mathrm{d}S\\ \hline 9.95\\ 6.13\\ 5.63\\ 3.68\\ 3.47\\ 3.02\\ 2.09\\ 1.25\\ 0.70\\ 0.37\\ 0.12\\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S\\ 5.92\\ 3.86\\ 3.54\\ 2.05\\ 1.91\\ 1.28\\ 0.84\\ \end{array}$	\(\frac{\pmu}{\pmu}\) \(\pm\)	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11 4.48 2.67 2.06 1.29 1.56 1.01 0.73
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \hline \\ 0.179 \\ 0.220 \\ 0.270 \\ 0.330 \\ 0.387 \\ 0.457 \\ 0.544 \\ \hline \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3 97.8 97.7 96.9 97.4 97.0 96.8 96.6 95.6	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ 28.73 \\ 22.31 \\ 18.40 \\ 7.55 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.29 \\ 5.61 \\ 4.50 \\ 3.33 \\ 2.51 \\ 2.23 \\ 1.73 \\ 0.97 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06 1.41 1.52 1.63 0.90	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.330 \\ 0.384 \\ 0.451 \\ 0.542 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61 50.56 25.20 21.06 10.51 5.83 2.61	<pre>< 9 d² ± T</pre>	$\begin{array}{c} 0\\ \frac{2}{\sigma}/\mathrm{d}p\mathrm{d}S\\ 9.95\\ 6.13\\ 5.63\\ 3.68\\ 3.47\\ 3.02\\ 2.09\\ 1.25\\ 0.70\\ 0.37\\ 0.12\\ \hline 25\\ \frac{2}{\sigma}/\mathrm{d}p\mathrm{d}S\\ 5.92\\ 3.86\\ 3.54\\ 2.05\\ 1.91\\ 1.28\\ 0.84\\ 0.48\\ \end{array}$	\(\frac{\pma}{\pmu}\) \(\pm\)	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11 4.48 2.67 2.06 1.29 1.56 1.01 0.73 0.42
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.699 \\ 0.794 \\ 1.017 \\ \hline \\ \hline \\ 0.179 \\ 0.220 \\ 0.270 \\ 0.330 \\ 0.387 \\ 0.457 \\ 0.544 \\ 0.655 \\ \hline \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.3 97.8 97.7 96.9 97.4 97.0 96.8 96.6 97.8	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ 28.73 \\ 22.31 \\ 18.40 \\ 7.55 \\ 2.87 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline \\ 0.5 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.29 \\ 5.61 \\ 4.50 \\ 3.33 \\ 2.51 \\ 2.23 \\ 1.73 \\ 0.97 \\ 0.52 \\ \end{array}$	\(\frac{\pm}{\pm}\) \(\pm\) \(6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06 1.41 1.52 1.63 0.90 0.46	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.330 \\ 0.384 \\ 0.451 \\ 0.542 \\ 0.669 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \hline \\ \langle \theta \rangle \\ 113.8 \\ 114.0 \\ 113.7 \\ 113.8 \\ 114.0 \\ 112.5 \\ 112.4 \\ 112.8 \\ 111.7 \\ \end{array} $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61 50.56 25.20 21.06 10.51 5.83 2.61 1.03	<pre>< 9 d² ± T</pre>	$\begin{array}{c} 0 \\ \frac{2}{3}\sigma/\mathrm{d}p\mathrm{d}S \\ 9.95 \\ 6.13 \\ 5.63 \\ 3.68 \\ 3.47 \\ 3.02 \\ 2.09 \\ 1.25 \\ 0.70 \\ 0.37 \\ 0.12 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 5.92 \\ 3.86 \\ 3.54 \\ 2.05 \\ 1.91 \\ 1.28 \\ 0.84 \\ 0.48 \\ 0.29 \\ \end{array}$	\(\Omega\) \(\frac{\pm}{\pm}\) \(\pm\)	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11 4.48 2.67 2.06 1.29 1.56 1.01 0.73 0.42 0.22
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.390 \\ 0.457 \\ 0.544 \\ 0.649 \\ 0.794 \\ 1.017 \\ \hline \\ \hline \\ 0.179 \\ 0.220 \\ 0.270 \\ 0.330 \\ 0.387 \\ 0.457 \\ 0.544 \\ \hline \end{array} $	67.4 67.2 66.8 67.1 66.9 67.0 67.2 67.1 66.7 67.0 67.3 97.8 97.7 96.9 97.4 97.0 96.8 96.6 95.6	$\begin{array}{c} 147.25 \\ 145.21 \\ 121.84 \\ 97.50 \\ 72.28 \\ 51.60 \\ 40.60 \\ 24.24 \\ 13.53 \\ 5.01 \\ 1.03 \\ \hline \\ 90 < \theta \\ \hline \\ 86.20 \\ 95.04 \\ 65.72 \\ 48.94 \\ 28.73 \\ 22.31 \\ 18.40 \\ 7.55 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.88 \\ 6.78 \\ 6.14 \\ 4.59 \\ 4.01 \\ 3.31 \\ 2.50 \\ 1.71 \\ 1.14 \\ 0.55 \\ 0.17 \\ \hline 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.29 \\ 5.61 \\ 4.50 \\ 3.33 \\ 2.51 \\ 2.23 \\ 1.73 \\ 0.97 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.88 4.84 3.49 2.66 1.95 1.93 1.57 1.21 0.62 0.19 5.83 4.32 2.52 2.06 1.41 1.52 1.63 0.90	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.146 \\ 0.178 \\ 0.220 \\ 0.267 \\ 0.328 \\ 0.387 \\ 0.456 \\ 0.543 \\ 0.655 \\ 0.784 \\ 1.023 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.330 \\ 0.384 \\ 0.451 \\ 0.542 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.5 \\ 82.0 \\ 82.1 \\ 82.1 \\ 82.2 \\ 81.9 \\ 81.8 \\ 81.7 \\ 81.6 \\ 80.6 \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$75 < \theta$ 115.92 113.15 98.13 62.83 53.49 41.12 27.74 13.21 5.17 2.14 0.49 $105 < \theta$ 85.80 64.61 50.56 25.20 21.06 10.51 5.83 2.61	<pre>< 9 d² ± T</pre>	$\begin{array}{c} 0\\ \frac{2}{\sigma}/\mathrm{d}p\mathrm{d}S\\ 9.95\\ 6.13\\ 5.63\\ 3.68\\ 3.47\\ 3.02\\ 2.09\\ 1.25\\ 0.70\\ 0.37\\ 0.12\\ \hline 25\\ \frac{2}{\sigma}/\mathrm{d}p\mathrm{d}S\\ 5.92\\ 3.86\\ 3.54\\ 2.05\\ 1.91\\ 1.28\\ 0.84\\ 0.48\\ \end{array}$	\(\frac{\pma}{\pmu}\) \(\pm\)	8.79 5.23 3.89 2.24 2.32 2.02 1.71 1.11 0.59 0.33 0.11 4.48 2.67 2.06 1.29 1.56 1.01 0.73 0.42

Table A.25: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^- + Cu \to p + X interactions with -8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 4	0		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.20-0.24	0.220	25.3	339.98	\pm	6.99	\pm	18.36							
0.24-0.30	0.270	25.2	328.63	\pm	5.48	\pm	15.84	0.267	35.3	415.67	\pm	53.20	\pm	18.36
0.30-0.36	0.329	25.3	267.73	\pm	4.97	\pm	12.12	0.329	35.1	321.00	\pm	5.22	\pm	12.20
0.36-0.42	0.390	25.2	225.01	\pm	4.61	\pm	10.03	0.389	35.1	259.09	\pm	4.84	\pm	9.69
0.42-0.50	0.458	25.2	175.83	\pm	3.49	\pm	7.54	0.458	35.1	198.95	\pm	3.77	\pm	8.29
0.50-0.60	0.547	25.2	132.81	\pm	2.69	\pm	5.90	0.547	35.0	149.55	\pm	2.94	\pm	6.95
0.60-0.72	0.656	25.2	85.20	\pm	1.93	\pm	4.26	0.655	35.2	96.04	\pm	2.17	\pm	5.74
0.72-0.90								0.799	35.1	52.85	\pm	1.30	\pm	3.99
			$40 < \theta$							$50 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.30-0.36	0.329	45.1	349.65	±	5.42	\pm	11.15							
0.36-0.42	0.389	45.2	281.84	\pm	4.85	\pm	8.12	0.389	55.1	296.41	\pm	4.74	\pm	9.40
0.42-0.50	0.458	45.1	218.90	\pm	3.81	\pm	7.19	0.458	55.0	242.54	\pm	3.87	\pm	6.86
0.50-0.60	0.548	45.1	159.84	\pm	3.06	\pm	7.28	0.547	54.9	160.73	\pm	2.96	\pm	6.48
0.60-0.72	0.655	45.0	101.43	\pm	2.27	\pm	6.19	0.654	55.0	99.16	\pm	2.25	\pm	5.94
0.72-0.90	0.799	44.9	52.08	\pm	1.35	\pm	4.28	0.797	54.9	49.19	\pm	1.33	\pm	4.11
0.90-1.25	1.032	44.9	14.99	±	0.51	\pm	1.83	1.035	54.9	12.60	±	0.48	±	1.70
			$60 < \theta$							$75 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.50-0.60	0.546	67.5	157.32	\pm	2.24	\pm	6.14							
0.60-0.72	0.653	67.3	93.69	\pm	1.68	\pm	5.51	0.654	81.8	67.69	\pm	1.34	\pm	4.82
0.72-0.90	0.798	67.1	40.46	\pm	0.98	\pm	3.96	0.796	81.6	26.15	\pm	0.78	\pm	2.89
0.90–1.25	1.033	66.9	10.70	±	0.37	\pm	1.66	1.029	81.5	5.33	\pm	0.27	±	0.95
			$90 < \theta$		-					$105 < \theta$	-	-		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.42-0.50								0.458	113.6	87.42	\pm	1.56	\pm	5.09
0.50-0.60								0.544	113.1	42.57	\pm	1.00	\pm	3.96
0.60-0.72	0.652	97.0	40.09	\pm	1.03	\pm	3.56	0.651	112.7	16.48	\pm	0.62	\pm	2.36
0.72-0.90	0.796	96.5	13.73	\pm	0.57	\pm	1.75	0.795	112.1	4.42	\pm	0.30	\pm	0.97
0.90-1.25	1.012	96.5	2.58	\pm	0.19	\pm	0.50	1.008	112.0	0.59	\pm	0.08	\pm	0.21

Table A.26: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^- + Cu $\to \pi^+$ + X interactions with -8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1 1			$20 < \theta$	< 3	0					$30 < \theta$	< 40	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	25.1	215.19	±	7.07	±	15.99	0.116	34.9	199.77	±	6.65	±	14.64
0.13-0.16	0.145	25.0	250.03	\pm	6.92	\pm	14.48	0.145	35.1	212.91	\pm	6.34	\pm	12.11
0.16-0.20	0.180	24.8	275.54	\pm	5.98	\pm	13.30	0.180	34.9	214.22	\pm	5.27	\pm	10.23
0.20-0.24	0.220	24.8	294.36	\pm	6.16	\pm	12.80	0.220	34.8	228.87	\pm	5.47	\pm	9.65
0.24-0.30	0.269	24.8	270.93	\pm	4.77	\pm	9.52	0.269	34.8	215.56	\pm	4.30	\pm	7.46
0.30-0.36	0.329	24.8	228.62	\pm	4.33	\pm	6.84	0.329	34.8	181.03	\pm	3.89	\pm	5.25
0.36-0.42	0.389	24.9	185.19	\pm	3.87	±	5.42	0.389	34.9	144.85	\pm	3.48	\pm	4.05
0.42-0.50	0.459	24.9	140.56	\pm	2.89	±	4.99	0.458	34.7	109.24	\pm	2.59	\pm	3.53
0.50-0.60	0.547	24.8	86.70	±	1.94	±	4.43	0.548	35.0	72.40	±	1.82	\pm	3.33
0.60-0.72	0.656	25.0	54.86	±	1.36	±	4.22	0.655	34.9	39.07	\pm	1.12	\pm	2.74
0.72-0.90	0.050	23.0	34.00		1.50		4.22	0.033	35.0	18.71	\pm	0.59	\pm	2.07
0.72-0.90								0.790	33.0				<u> </u>	2.07
			$40 < \theta$							$50 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$			$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	44.9	153.43	\pm	6.12	\pm	11.70							
0.13-0.16	0.145	44.9	175.95	\pm	5.69	\pm	10.12	0.145	55.1	139.80	\pm	5.13	\pm	8.38
0.16-0.20	0.180	45.0	190.03	\pm	4.98	\pm	9.14	0.180	54.9	153.20	\pm	4.38	\pm	7.31
0.20-0.24	0.220	44.7	183.32	\pm	4.85	\pm	7.50	0.220	54.9	143.18	\pm	4.33	\pm	5.84
0.24-0.30	0.269	44.7	162.24	\pm	3.75	\pm	5.65	0.269	54.7	130.00	\pm	3.35	\pm	4.34
0.30-0.36	0.329	44.8	136.76	\pm	3.44	\pm	4.09	0.329	54.8	105.92	\pm	3.01	\pm	3.07
0.36-0.42	0.389	44.8	110.12	\pm	3.01	\pm	3.13	0.389	54.7	86.56	\pm	2.74	\pm	2.74
0.42-0.50	0.459	44.8	84.61	\pm	2.32	\pm	2.80	0.459	54.7	64.08	\pm	2.00	\pm	2.29
0.50-0.60	0.547	44.7	51.51	\pm	1.51	\pm	2.31	0.545	54.6	39.77	\pm	1.38	\pm	1.94
0.60-0.72	0.655	44.7	30.34	\pm	1.02	\pm	1.99	0.657	54.8	21.93	\pm	0.91	\pm	1.51
0.72-0.90	0.797	44.5	13.28	\pm	0.51	\pm	1.34	0.793	54.4	9.53	\pm	0.43	\pm	0.99
0.00 1.05	1													
0.90–1.25								1.024	54.4	2.45	\pm	0.14	\pm	0.41
0.90-1.25			$\frac{ }{60 < \theta}$	< 7	5			1.024	54.4	$\frac{2.45}{75 < \theta}$	< 90	0		0.41
0.90-1.25	$\langle p_{ m T} \rangle$	$\langle \theta \rangle$	$60 < \theta$		$\frac{5}{\sigma/\mathrm{d}p\mathrm{d}}$	Ω		$ 1.024 $ $ \langle p_{\rm T} \rangle$	$\langle \theta \rangle$		< 90			0.41
	$\langle p_{\mathrm{T}} \rangle$ 0.146	(θ) 67.3	$60 < \theta$			Ω ±	6.79				< 90	0		10.49
$p_{ m T}$	$\langle p_{\rm T} \rangle$ 0.146 0.180			d^2	$\sigma/\mathrm{d}p\mathrm{d}$		6.79 5.55	$\langle p_{ m T} angle$	$\langle \theta \rangle$	$75 < \theta$	< 90	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
p _T 0.13-0.16	0.146	67.3	111.21	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{3.90}$	±		$\langle p_{\mathrm{T}} \rangle$ 0.147	(θ) 81.3	$75 < \theta$ 95.87	< 90 d ² ±	$\frac{\sigma}{\sigma/dpds}$ 5.60	Ω ±	10.49
p _T 0.13–0.16 0.16–0.20	0.146 0.180	67.3 67.2	111.21 115.63	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/dpd}{3.90}$ 3.07	± ±	5.55	$\langle p_{\rm T} \rangle$ 0.147 0.178	(θ) 81.3 82.7	$75 < \theta$ 95.87 101.17	< 90 d ² ± ±	$\frac{1}{\sigma/dp}$	12 ± ±	10.49 4.64
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.146 0.180 0.219	67.3 67.2 67.1 67.1	111.21 115.63 116.41	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/dpd}{3.90}$ 3.07 3.13	± ± ±	5.55 4.56	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219	(θ) 81.3 82.7 82.1 81.9	$75 < \theta$ 95.87 101.17 81.54	< 90 d ² ± ± ± ±	$\frac{5}{60}$ 5.60 10.09 2.57	12 ± ± ± ±	10.49 4.64 3.00
p _T 0.13-0.16 0.16-0.20 0.20-0.24	0.146 0.180 0.219 0.269	67.3 67.2 67.1	111.21 115.63 116.41 98.38	$\frac{\mathrm{d}^2}{\pm}$ \pm \pm \pm	$\frac{\sigma/dpd}{3.90}$ 3.07 3.13 2.40	± ± ±	5.55 4.56 3.39	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267	$\langle \theta \rangle$ 81.3 82.7 82.1	$75 < \theta$ 95.87 101.17 81.54 67.72	< 90 d ² ± ±	$\frac{1000}{5.60}$ $\frac{5.60}{10.09}$ $\frac{2.57}{2.02}$	12 ± ± ±	10.49 4.64 3.00 2.49
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.146 0.180 0.219 0.269 0.329	67.3 67.2 67.1 67.1 67.2	111.21 115.63 116.41 98.38 79.02	d ² ± ± ± ± ± ±	$\frac{\sigma/dpd}{3.90}$ 3.90 3.07 3.13 2.40 2.17	± ± ± ±	5.55 4.56 3.39 2.60	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328	$\langle \theta \rangle$ 81.3 82.7 82.1 81.9 81.3	75 < θ 95.87 101.17 81.54 67.72 44.02	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{1}{6}\sigma/dpd9$ 5.60 10.09 2.57 2.02 1.61	10 ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.146 0.180 0.219 0.269 0.329 0.389	67.3 67.2 67.1 67.1 67.2 66.7	111.21 115.63 116.41 98.38 79.02 58.07	d ² ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd}{3.90} $ 3.90 3.07 3.13 2.40 2.17 1.81	± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328 0.388	⟨θ⟩ 81.3 82.7 82.1 81.9 81.3 81.8	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{5.60}{5.60}$ 5.60 10.09 2.57 2.02 1.61 1.50	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.180 0.219 0.269 0.329 0.389 0.458	67.3 67.2 67.1 67.1 67.2 66.7	111.21 115.63 116.41 98.38 79.02 58.07 43.36	### ### ### ### ### ### ### ### #### ####	$ \frac{\sigma/dpd}{3.90} $ 3.07 3.13 2.40 2.17 1.81 1.37	± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328 0.388 0.459	(θ) 81.3 82.7 82.1 81.9 81.3 81.8 81.5	75 < θ 95.87 101.17 81.54 67.72 44.02 37.63 23.65	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ \end{array}$	± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547	67.3 67.2 67.1 67.1 67.2 66.7 66.7	111.21 115.63 116.41 98.38 79.02 58.07 43.36 26.89	d ² ± ± ± ± ± ± ± ± ±	$\frac{\sigma/dpd}{3.90}$ 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93	± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328 0.388 0.459 0.545	(θ) 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{3\sigma}{dp}ds$ 5.60 10.09 2.57 2.02 1.61 1.50 1.00 0.67	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5	111.21 115.63 116.41 98.38 79.02 58.07 43.36 26.89 13.10	d ² ± ± ± ± ± ± ± ± ± ±	3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56	± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.58 1.09	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328 0.388 0.459 0.545 0.656	(θ) 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8	75 < θ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.60 10.09 2.57 2.02 1.61 1.50 1.00 0.67 0.40	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5	111.21 115.63 116.41 98.38 79.02 58.07 43.36 26.89 13.10 5.87 1.39	d ² ± ± ± ± ± ± ± ± ± ± ±	7/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09	± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328 0.388 0.459 0.545 0.656 0.797	(θ) 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 81.9	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \end{array}$	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.7 66.3	111.21 115.63 116.41 98.38 79.02 58.07 43.36 26.89 13.10 5.87	d ² ± ± ± ± ± ± ± ± ± ± ±	3.90 3.97 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09	± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \end{array}$	(\(\theta\)) 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 81.9 80.4	75 < θ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66	< 90 d ² ± ± ± ± ± ± ± ± ± ± < 12	$\begin{array}{c} 0 \\ \hline 6 \sigma / \mathrm{d}p \mathrm{d}S \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.7 66.3	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \end{array}$	$ \begin{array}{r} d^2 \\ \pm \\ \hline < 10 \\ d^2 \end{array} $	σ/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 05 σ/dpd	± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.58 1.09 0.69 0.26	$\langle p_{\rm T} \rangle$ 0.147 0.178 0.219 0.267 0.328 0.388 0.459 0.545 0.656 0.797 1.031	$\langle \theta \rangle$ 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 80.4	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$		$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \end{array}$	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024 $\langle p_{\rm T} \rangle$	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ \hline \end{array}$	$ \begin{array}{c} $	σ/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 05 σ/dpd 4.42	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \hline \end{array}$	$\langle \theta \rangle$ 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 81.9 80.4	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$		$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline \end{array}$	20 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024 $\langle p_{\rm T} \rangle$ 0.147 0.179	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 (θ) 97.9 97.2	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 86.42 \\ 79.44 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ $	σ/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 05 σ/dpd 4.42 2.64	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.3 \\ 82.7 \\ 82.1 \\ 81.9 \\ 81.3 \\ 81.8 \\ 81.5 \\ 81.7 \\ 81.8 \\ 81.9 \\ 80.4 \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.2 \\ 113.9 \\ \end{array} $	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64		$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline 25 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 2.64 \\ 1.93 \\ \end{array}$	20 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.653 \\ 0.792 \\ 1.024 \\ \hline \\ $	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 (θ) 97.9 97.2 97.2	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	σ/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 05 σ/dpd 4.42 2.64 2.46	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ \end{array}$	$\langle \theta \rangle$ 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 81.9 80.4 $\langle \theta \rangle$ 114.2 113.9 113.7	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54		$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline 25 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 2.64 \\ 1.93 \\ 1.62 \\ \end{array}$	12	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.653 \\ 0.792 \\ 1.024 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array} $	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 (θ) 97.9 97.2 97.2 97.1	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.5 σ/dpd 4.42 2.64 2.46 1.70	# # # # # # # # # # # # # # # # # # #	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ \end{array}$	$\langle \theta \rangle$ 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 81.9 80.4 $\langle \theta \rangle$ 114.2 113.9 113.7	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ \end{array}$	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 1.36 1.30
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.653 \\ 0.792 \\ 1.024 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ \hline \end{array} $	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 (θ) 97.9 97.2 97.2 97.1 97.3	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ 33.26 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	σ/dpd 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.5 σ/dpd 4.42 2.64 2.46 1.70 1.42	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.3 \\ 82.7 \\ 82.1 \\ 81.9 \\ 81.3 \\ 81.8 \\ 81.5 \\ 81.7 \\ 81.8 \\ 81.9 \\ 80.4 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44 16.02	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \hline G\sigma/dpdS \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline \\ 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ 0.83 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 1.36 1.30 0.93
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.653 \\ 0.792 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ \end{array} $	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 (θ) 97.9 97.2 97.2 97.1 97.3 97.1	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ 33.26 \\ 22.65 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.5 $\sigma/\text{d}p\text{d}$ 4.42 2.64 2.46 1.70 1.42 1.13	### ##################################	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.69 0.26 6.38 3.39 2.39 1.69 1.48 1.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.388 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.3 \\ 82.7 \\ 82.1 \\ 81.9 \\ 81.3 \\ 81.8 \\ 81.5 \\ 81.7 \\ 81.8 \\ 81.9 \\ 80.4 \\ \hline \\ \hline \\ \langle \theta \rangle \\ 114.2 \\ 113.9 \\ 113.7 \\ 113.7 \\ 113.7 \\ 113.3 \\ \end{array} $	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44 16.02 12.54	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline \\ 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ 0.83 \\ 0.74 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 1.36 1.30 0.93 0.99
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.653 \\ 0.792 \\ 1.024 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ \end{array} $	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 (θ) 97.9 97.2 97.2 97.1 97.3 97.1 96.6	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ 33.26 \\ 22.65 \\ 15.14 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.5 $\sigma/\text{d}p\text{d}$ 4.42 2.64 2.46 1.70 1.42 1.13 0.80		5.55 4.56 3.39 2.60 1.86 1.58 1.09 0.69 0.26 6.38 3.39 2.39 1.69 1.48 1.26 1.15	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.388 \\ 0.457 \\ \end{array}$	$\langle \theta \rangle$ 81.3 82.7 82.1 81.9 81.3 81.8 81.5 81.7 81.8 81.9 114.2 113.9 113.7 113.7 113.7 113.7	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44 16.02 12.54 5.78	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ 0.83 \\ 0.74 \\ 0.41 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 1.36 1.30 0.93 0.99 0.60
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.268 0.329 0.388 0.457 0.545	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 97.9 97.2 97.2 97.1 97.3 97.1 96.6 96.7	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ 33.26 \\ 22.65 \\ 15.14 \\ 7.72 \\ \hline \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.5 $\sigma/\text{d}p\text{d}$ 4.42 2.64 2.46 1.70 1.42 1.13 0.80 0.50	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.26 6.38 3.39 2.39 1.69 1.48 1.26 1.15 0.80	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.388 \\ 0.457 \\ 0.542 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.3 \\ 82.7 \\ 82.1 \\ 81.9 \\ 81.3 \\ 81.8 \\ 81.5 \\ 81.7 \\ 81.8 \\ 81.9 \\ 80.4 \\ \hline \\ \hline \\ \langle \theta \rangle \\ 114.2 \\ 113.9 \\ 113.7 \\ 113.7 \\ 113.7 \\ 113.3 \\ 113.9 \\ 112.3 \\ \end{array} $	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44 16.02 12.54 5.78 2.17	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \sigma \\ \sigma / \mathrm{d}p \mathrm{d}s \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline 25 \\ \sigma / \mathrm{d}p \mathrm{d}s \\ \hline 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ 0.83 \\ 0.74 \\ 0.41 \\ 0.22 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 1.36 1.30 0.93 0.99 0.60 0.30
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024 (p _T) 0.147 0.179 0.219 0.268 0.329 0.388 0.457 0.545 0.650	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 97.9 97.2 97.2 97.1 96.6 96.7 95.7	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ 33.26 \\ 22.65 \\ 15.14 \\ 7.72 \\ 3.07 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.55 $\sigma/\text{d}p\text{d}$ 0.42 0.42 0.42 0.43 0.442	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.26 6.38 3.39 2.39 1.69 1.48 1.26 1.15 0.80 0.43	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.388 \\ 0.457 \\ 0.542 \\ 0.652 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.3 \\ 82.7 \\ 82.1 \\ 81.9 \\ 81.3 \\ 81.8 \\ 81.5 \\ 81.7 \\ 81.8 \\ 81.9 \\ 80.4 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44 16.02 12.54 5.78 2.17 1.20	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ 0.83 \\ 0.74 \\ 0.41 \\ 0.22 \\ 0.15 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 0.93 0.99 0.60 0.30 0.22
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.180 0.219 0.269 0.329 0.389 0.458 0.547 0.653 0.792 1.024 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.268 0.329 0.388 0.457 0.545	67.3 67.2 67.1 67.1 67.2 66.7 66.5 66.5 66.5 66.3 97.9 97.2 97.2 97.1 97.3 97.1 96.6 96.7	$\begin{array}{c} 111.21 \\ 115.63 \\ 116.41 \\ 98.38 \\ 79.02 \\ 58.07 \\ 43.36 \\ 26.89 \\ 13.10 \\ 5.87 \\ 1.39 \\ \hline \\ 90 < \theta \\ \hline \\ 86.42 \\ 79.44 \\ 70.56 \\ 48.49 \\ 33.26 \\ 22.65 \\ 15.14 \\ 7.72 \\ \hline \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 3.90 3.07 3.13 2.40 2.17 1.81 1.37 0.93 0.56 0.30 0.09 0.5 $\sigma/\text{d}p\text{d}$ 4.42 2.64 2.46 1.70 1.42 1.13 0.80 0.50	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.55 4.56 3.39 2.60 1.86 1.86 1.58 1.09 0.26 6.38 3.39 2.39 1.69 1.48 1.26 1.15 0.80	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.328 \\ 0.388 \\ 0.459 \\ 0.545 \\ 0.656 \\ 0.797 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.327 \\ 0.388 \\ 0.457 \\ 0.542 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.3 \\ 82.7 \\ 82.1 \\ 81.9 \\ 81.3 \\ 81.8 \\ 81.5 \\ 81.7 \\ 81.8 \\ 81.9 \\ 80.4 \\ \hline \\ \hline \\ \langle \theta \rangle \\ 114.2 \\ 113.9 \\ 113.7 \\ 113.7 \\ 113.7 \\ 113.3 \\ 113.9 \\ 112.3 \\ \end{array} $	$75 < \theta$ 95.87 101.17 81.54 67.72 44.02 37.63 23.65 13.97 6.60 2.66 0.53 $105 < \theta$ 72.69 59.64 40.54 30.44 16.02 12.54 5.78 2.17	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \sigma \\ \sigma / \mathrm{d}p \mathrm{d}s \\ \hline 5.60 \\ 10.09 \\ 2.57 \\ 2.02 \\ 1.61 \\ 1.50 \\ 1.00 \\ 0.67 \\ 0.40 \\ 0.20 \\ 0.06 \\ \hline 25 \\ \sigma / \mathrm{d}p \mathrm{d}s \\ \hline 2.64 \\ 1.93 \\ 1.62 \\ 1.19 \\ 0.83 \\ 0.74 \\ 0.41 \\ 0.22 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.49 4.64 3.00 2.49 1.54 1.63 1.25 1.02 0.66 0.37 0.12 3.95 2.30 1.36 1.30 0.93 0.99 0.60 0.30

Table A.27: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^- + Cu $\to \pi^-$ + X interactions with -8.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

p_{T}			$20 < \theta$	< 3	0					$30 < \theta$	< 40)		
1 L L	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.116	24.9	311.20	±	8.50	±	22.85	0.115	34.8	260.61	\pm	7.74	±	19.53
0.13-0.16	0.146	24.9	374.28	\pm	8.67	\pm	22.57	0.145	35.0	274.70	\pm	7.25	\pm	16.04
0.16-0.20	0.180	24.8	420.26	\pm	7.67	\pm	21.34	0.180	34.7	306.61	\pm	6.43	\pm	14.97
0.20-0.24	0.220	24.8	406.38	\pm	7.32	\pm	16.52	0.220	34.7	308.59	\pm	6.33	\pm	12.57
0.24-0.30	0.270	24.9	381.81	\pm	5.79	\pm	12.83	0.269	34.7	281.81	\pm	4.94	\pm	9.32
0.30-0.36	0.329	24.8	311.53	\pm	5.14	\pm	8.73	0.329	34.7	241.22	\pm	4.55	\pm	6.74
0.36-0.42	0.388	24.9	263.92	\pm	4.76	\pm	7.57	0.388	34.8	191.58	\pm	4.05	\pm	5.42
0.42-0.50	0.458	24.8	198.76	\pm	3.57	\pm	7.15	0.457	34.7	143.50	\pm	3.04	\pm	4.99
0.50-0.60	0.546	24.8	130.18	\pm	2.59	\pm	6.56	0.547	34.8	95.47	\pm	2.20	\pm	4.64
0.60-0.72	0.654	24.9	77.60	\pm	1.82	\pm	5.52	0.653	34.6	52.17	\pm	1.43	\pm	3.58
0.72-0.90								0.796	34.9	24.36	\pm	0.79	\pm	2.39
			$40 < \theta$	< 5	0					$50 < \theta$	< 60)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	44.8	215.37	±	7.09	±	16.43							
0.13-0.16	0.145	44.8	249.96	\pm	6.98	\pm	14.80	0.145	54.9	189.71	\pm	6.02	\pm	11.55
0.16-0.20	0.180	44.7	233.69	\pm	5.59	\pm	11.46	0.180	55.0	191.12	\pm	5.03	\pm	9.29
0.20-0.24	0.220	44.8	239.12	\pm	5.62	\pm	9.84	0.220	55.0	184.56	\pm	4.96	\pm	7.44
0.24-0.30	0.269	44.7	214.68	\pm	4.40	\pm	7.57	0.268	54.9	159.86	\pm	3.74	\pm	5.17
0.30-0.36	0.329	44.6	182.77	\pm	4.00	\pm	5.17	0.330	54.7	125.93	\pm	3.32	\pm	3.60
0.36-0.42	0.389	44.8	147.47	\pm	3.60	\pm	4.43	0.389	54.8	98.55	\pm	2.93	\pm	3.02
0.42-0.50	0.458	44.8	106.63	\pm	2.60	\pm	3.92	0.457	54.9	79.65	\pm	2.27	\pm	3.08
0.50-0.60	0.547	44.8	68.44	\pm	1.83	\pm	3.53	0.546	54.6	48.86	\pm	1.54	\pm	2.63
0.60-0.72	0.655	44.7	39.15	\pm	1.27	\pm	2.85	0.653	54.6	31.00	\pm	1.13	\pm	2.33
0.72-0.90	0.797	44.8	19.70	\pm	0.73	\pm	2.04	0.796	54.5	15.09	\pm	0.65	\pm	1.59
0.90-1.25								1.033	54.4	2.93	\pm	0.17	\pm	0.50
			•							•				
Ι Τ			$60 < \theta$							$75 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$			$\langle p_{ m T} angle$	$\langle heta angle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$		
p _T 0.13–0.16	$\langle p_{\mathrm{T}} \rangle$ 0.145	⟨θ⟩ 67.1	$60 < \theta$		$\frac{\sigma/\mathrm{d}p\mathrm{d}}{4.71}$	±	9.23	$\langle p_{\mathrm{T}} \rangle$ 0.147	81.8	138.53			\pm	13.21
0.13-0.16 0.16-0.20	0.145 0.180	67.1 67.0	157.80 162.06	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{4.71}$ 3.82	± ±	7.38	0.147 0.180	81.8 82.2		$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{6.09}$ 3.42	± ±	5.61
0.13-0.16 0.16-0.20 0.20-0.24	0.145 0.180 0.220	67.1 67.0 67.1	157.80 162.06 142.33	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/dpd}{4.71}$ 3.82 3.51	± ± ±	7.38 5.29	0.147 0.180 0.219	81.8 82.2 82.1	138.53 128.09 106.63	d ² ± ± ±	$\frac{\sigma/dp}{6.09}$ 3.42 3.08	± ± ±	5.61 3.82
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.180 0.220 0.269	67.1 67.0 67.1 66.9	157.80 162.06 142.33 119.03	d ² ± ± ± ±	$\frac{\sigma/dpd}{4.71}$ 3.82 3.51 2.68	± ± ±	7.38 5.29 4.05	0.147 0.180 0.219 0.269	81.8 82.2 82.1 82.0	138.53 128.09 106.63 84.52	± ± ± ±	$\frac{\sigma/dpd}{6.09}$ 3.42 3.08 2.30	± ± ±	5.61 3.82 3.19
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.145 0.180 0.220 0.269 0.329	67.1 67.0 67.1 66.9 66.9	157.80 162.06 142.33 119.03 92.28	d ² ± ± ± ± ± ±	$\frac{\sigma/dpd}{4.71}$ 3.82 3.51 2.68 2.37	± ± ± ± ±	7.38 5.29 4.05 3.06	0.147 0.180 0.219 0.269 0.327	81.8 82.2 82.1 82.0 81.9	138.53 128.09 106.63 84.52 63.04	d ² ± ± ± ± ± ±	$ \frac{\sigma/dpd}{6.09} $ 3.42 3.08 2.30 1.97	± ± ± ±	5.61 3.82 3.19 2.43
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42	0.145 0.180 0.220 0.269 0.329 0.389	67.1 67.0 67.1 66.9 66.9	157.80 162.06 142.33 119.03 92.28 70.49	### ### ### ### ### ### ### ### #### ####	$\frac{\sigma/dpd}{4.71}$ 3.82 3.51 2.68 2.37 2.04	± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47	0.147 0.180 0.219 0.269 0.327 0.389	81.8 82.2 82.1 82.0 81.9 81.9	138.53 128.09 106.63 84.52 63.04 43.39	### ### ### ### ### #### #### ########	$\frac{\sigma/dpd}{6.09}$ 3.42 3.08 2.30 1.97 1.62	± ± ± ± ±	5.61 3.82 3.19 2.43 1.96
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.180 0.220 0.269 0.329 0.389 0.458	67.1 67.0 67.1 66.9 66.9 66.7 66.9	157.80 162.06 142.33 119.03 92.28 70.49 51.84	d ² ± ± ± ± ± ± ± ± ±	$\frac{\sigma/dpd}{4.71}$ 3.82 3.51 2.68 2.37 2.04 1.49	± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30	0.147 0.180 0.219 0.269 0.327 0.389 0.458	81.8 82.2 82.1 82.0 81.9 81.9 81.9	138.53 128.09 106.63 84.52 63.04 43.39 32.45	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 6.09 3.42 3.08 2.30 1.97 1.62 1.20	± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0	157.80 162.06 142.33 119.03 92.28 70.49 51.84 32.53	d ² ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/dpd}{4.71}$ 3.82 3.51 2.68 2.37 2.04 1.49 1.05	± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01	0.147 0.180 0.219 0.269 0.327 0.389 0.458 0.547	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1	138.53 128.09 106.63 84.52 63.04 43.39 32.45 17.95	d ² ± ± ± ± ± ± ± ± ± ±	σ/dpd 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78	± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.654	67.1 67.0 67.1 66.9 66.7 66.9 67.0 66.8	157.80 162.06 142.33 119.03 92.28 70.49 51.84 32.53 17.68	d ² ± ± ± ± ± ± ± ± ±	7/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69	± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50	0.147 0.180 0.219 0.269 0.327 0.389 0.458 0.547 0.655	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7	138.53 128.09 106.63 84.52 63.04 43.39 32.45 17.95 10.04	d ² ± ± ± ± ± ± ± ± ± ±	σ/dpd 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54	± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.654 0.793	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3	157.80 162.06 142.33 119.03 92.28 70.49 51.84 32.53 17.68 7.85	d ² ± ± ± ± ± ± ± ± ± ±	7/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37	± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93	0.147 0.180 0.219 0.269 0.327 0.389 0.458 0.547 0.655 0.796	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7 81.2	138.53 128.09 106.63 84.52 63.04 43.39 32.45 17.95 10.04 3.08	d ² ± ± ± ± ± ± ± ± ± ±	6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23	± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.654	67.1 67.0 67.1 66.9 66.7 66.9 67.0 66.8	157.80 162.06 142.33 119.03 92.28 70.49 51.84 32.53 17.68 7.85 1.40	d ² ± ± ± ± ± ± ± ± ± ± ±	7/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10	± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50	0.147 0.180 0.219 0.269 0.327 0.389 0.458 0.547 0.655	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7	138.53 128.09 106.63 84.52 63.04 43.39 32.45 17.95 10.04 3.08 0.70	d ² ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07	± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.654 0.793 1.031	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5	157.80 162.06 142.33 119.03 92.28 70.49 51.84 32.53 17.68 7.85	d ² ± ± ± ± ± ± ± ± ± ± ± ±	7/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10	± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93	0.147 0.180 0.219 0.269 0.327 0.389 0.458 0.547 0.655 0.796 1.026	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7 81.2 81.0	138.53 128.09 106.63 84.52 63.04 43.39 32.45 17.95 10.04 3.08	d ² ± ± ± ± ± ± ± ± ± ± ±	7/dpd 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07	± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ \end{array} $	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \\ 90 < \theta \\ \end{array}$		σ/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10 05 σ/dpd	± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26	0.147 0.180 0.219 0.269 0.327 0.389 0.458 0.547 0.655 0.796 1.026	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \end{array}$		σ/dpd 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 σ/dpd	± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.654 0.793 1.031 $\langle p_{\rm T} \rangle$ 0.147	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	σ/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10 5 σ/dpd 5.95	± ± ± ± ± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \hline \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0 $\langle \theta \rangle$	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 105 < \theta \\ \hline \\ 103.17 \\ \end{array}$		$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ \hline \end{array} $	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10 05 $\sigma/\text{d}p\text{d}$ 5.95 3.15	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0 (φ)	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 105 < \theta \\ \hline \\ 103.17 \\ 76.12 \\ \end{array}$		$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 $\sigma/\text{d}p\text{d}$ 3.22 2.25	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ \end{array} $	67.1 67.0 67.1 66.9 66.7 66.9 67.0 66.8 66.3 66.5 (θ) 97.6 97.6 97.6	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ \pm \\ $	σ/dpd 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10 0.5 σ/dpd 5.95 3.15 2.73	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0 (φ) 114.0 113.9 113.9	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array} $	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 97.6 97.6 97.6 97.3	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ \end{array}$		$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 0.37 0.10 5 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92	### ### ##############################	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26 9.12 4.50 2.76 2.26	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.9	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ \end{array}$		$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93 1.29	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ \end{array} $	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 97.6 97.6 97.3 97.3	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ 39.22 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 1.05 0.69 0.37 0.10 05 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92 1.54		7.38 5.29 4.05 3.06 2.47 2.30 0.93 0.26 9.12 4.50 2.76 2.26 1.78	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.328 \\ \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.6 113.6	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ 19.99 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93 1.29 0.95	# # # # # # # # # # # # # # # # # # #	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86 1.66 1.32
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ \end{array} $	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 77.6 97.6 97.3 97.3 97.3 96.8	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ 39.22 \\ 27.83 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 0.37 0.10 0.5 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92 1.54 1.30	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26 9.12 4.50 2.76 2.26 1.78 1.75	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.328 \\ 0.388 \\ \hline \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.6 113.6 113.6	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ 19.99 \\ 13.76 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 0.75 0.77 0.95 0.95 0.95	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86 1.66 1.32 1.23
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.654 0.793 1.031 (p _T) 0.147 0.179 0.219 0.268 0.329 0.388 0.456	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 97.6 97.6 97.3 97.3 97.3 96.8 96.7	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ 39.22 \\ 27.83 \\ 18.07 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 0.37 0.10 0.5 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92 1.54 1.30 0.88	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26 9.12 4.50 2.76 2.26 1.78 1.75 1.50	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ $	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.6 113.6 113.6	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ 19.99 \\ 13.76 \\ 7.92 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93 1.29 0.95 0.77 0.51	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86 1.66 1.32 1.23 0.93
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$\begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.456 \\ 0.545 \\ \hline \end{array}$	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 97.6 97.6 97.3 97.3 96.8 96.7 96.3	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ 39.22 \\ 27.83 \\ 18.07 \\ 9.37 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 0.37 0.10 0.5 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92 1.54 1.30 0.88 0.54	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 0.201 1.50 0.93 0.26 9.12 4.50 2.76 2.26 1.78 1.75 1.50	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \hline \\ v_{\rm T}\rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.545 \\ \hline \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.6 113.6 113.6 113.1	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ 19.99 \\ 13.76 \\ 7.92 \\ 3.31 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93 1.29 0.95 0.77 0.51 0.29		5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86 1.32 1.23 0.93 0.51
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.180 0.220 0.269 0.329 0.389 0.458 0.546 0.6793 1.031 (p _T) 0.147 0.179 0.219 0.268 0.329 0.388 0.456 0.545 0.650	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 97.6 97.6 97.3 97.3 97.3 96.8 96.7 96.3 96.5	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ 39.22 \\ 27.83 \\ 18.07 \\ 9.37 \\ 3.86 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 0.37 0.10 0.5 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92 1.54 1.30 0.88 0.54 0.33	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 2.01 1.50 0.93 0.26 9.12 4.50 2.76 2.26 1.78 1.75 1.50 1.07 0.59	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.388 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.545 \\ 0.646 \\ \hline \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.6 113.6 113.6 113.1 112.4	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ \hline 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ 19.99 \\ 13.76 \\ 7.92 \\ 3.31 \\ 1.09 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93 1.29 0.95 0.77 0.51 0.29 0.14		5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86 1.66 1.32 1.23 0.93 0.51 0.22
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$\begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.458 \\ 0.546 \\ 0.654 \\ 0.793 \\ 1.031 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.456 \\ 0.545 \\ \hline \end{array}$	67.1 67.0 67.1 66.9 66.9 66.7 66.9 67.0 66.8 66.3 66.5 97.6 97.6 97.3 97.3 96.8 96.7 96.3	$\begin{array}{c} 157.80 \\ 162.06 \\ 142.33 \\ 119.03 \\ 92.28 \\ 70.49 \\ 51.84 \\ 32.53 \\ 17.68 \\ 7.85 \\ 1.40 \\ \hline \\ 90 < \theta \\ \hline \\ 120.43 \\ 107.01 \\ 83.19 \\ 59.86 \\ 39.22 \\ 27.83 \\ 18.07 \\ 9.37 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 4.71 3.82 3.51 2.68 2.37 2.04 1.49 0.37 0.10 0.5 $\sigma/\text{d}p\text{d}$ 5.95 3.15 2.73 1.92 1.54 1.30 0.88 0.54	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.38 5.29 4.05 3.06 2.47 2.30 0.201 1.50 0.93 0.26 9.12 4.50 2.76 2.26 1.78 1.75 1.50	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.327 \\ 0.389 \\ 0.458 \\ 0.547 \\ 0.655 \\ 0.796 \\ 1.026 \\ \hline \\ \hline \\ v_{\rm T}\rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.545 \\ \hline \end{array} $	81.8 82.2 82.1 82.0 81.9 81.9 81.9 82.1 81.7 81.2 81.0 (θ) 114.0 113.9 113.6 113.6 113.6 113.1	$\begin{array}{c} 138.53 \\ 128.09 \\ 106.63 \\ 84.52 \\ 63.04 \\ 43.39 \\ 32.45 \\ 17.95 \\ 10.04 \\ 3.08 \\ 0.70 \\ \hline \\ 103.17 \\ 76.12 \\ 53.78 \\ 35.84 \\ 19.99 \\ 13.76 \\ 7.92 \\ 3.31 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\sigma/\text{d}p\text{d}$ 6.09 3.42 3.08 2.30 1.97 1.62 1.20 0.78 0.54 0.23 0.07 25 $\sigma/\text{d}p\text{d}$ 3.22 2.25 1.93 1.29 0.95 0.77 0.51 0.29		5.61 3.82 3.19 2.43 1.96 1.90 1.42 1.08 0.45 0.16 5.39 2.68 1.86 1.32 1.23 0.93 0.51

Table A.28: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in p + Cu \rightarrow p + X interactions with +12.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \ell$	$\theta < 3$	0					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.220	25.2	492.70	±	12.36	\pm	26.78							
0.24-0.30	0.270	25.2	447.61	\pm	9.21	\pm	21.57	0.271	34.9	518.58	\pm	9.82	\pm	22.89
0.30-0.36	0.329	25.2	387.95	\pm	8.81	\pm	17.86	0.329	35.1	447.35	\pm	9.00	\pm	17.05
0.36-0.42	0.389	25.2	346.93	\pm	8.37	\pm	15.02	0.390	35.0	376.91	\pm	8.58	\pm	14.26
0.42-0.50	0.459	25.1	277.22	\pm	6.32	\pm	11.93	0.458	34.9	300.59	\pm	6.75	\pm	12.62
0.50-0.60	0.547	25.2	215.87	\pm	4.97	\pm	9.63	0.546	35.0	238.18	\pm	5.48	\pm	11.81
0.60-0.72	0.655	25.1	151.55	\pm	3.78	\pm	7.77	0.657	35.1	162.49	\pm	4.07	\pm	9.07
0.72-0.90								0.801	35.1	94.11	\pm	2.53	±	7.01
			$40 < \ell$	$\theta < 5$	0					$50 < \theta$	< 60)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.326	45.4	572.21	±	76.15	\pm	18.26							
0.36-0.42	0.389	45.1	424.45	\pm	8.64	\pm	12.34	0.388	55.2	438.79	\pm	8.55	\pm	12.94
0.42-0.50	0.459	45.1	329.46	\pm	6.86	\pm	10.45	0.459	55.0	342.61	\pm	6.71	\pm	9.82
0.50-0.60	0.547	45.0	243.24	\pm	5.46	\pm	10.71	0.549	55.0	242.98	\pm	5.30	\pm	9.56
0.60-0.72	0.657	45.1	158.65	\pm	4.10	\pm	9.29	0.655	54.9	147.87	\pm	3.98	\pm	8.90
0.72-0.90	0.799	44.9	92.58	\pm	2.64	\pm	7.41	0.799	54.7	82.51	\pm	2.53	\pm	6.90
0.90-1.25	1.037	44.9	27.44	\pm	1.01	\pm	3.45	1.028	54.8	22.80	\pm	0.93	±	2.91
			$60 < \ell$	$\theta < 7$	5					$75 < \theta$	< 90)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.546	67.4	228.90	±	3.94	\pm	9.08							
0.60-0.72	0.654	67.3	140.63	\pm	3.01	\pm	8.22	0.652	81.6	101.02	\pm	2.39	\pm	7.21
0.72-0.90	0.799	67.2	66.98	\pm	1.84	\pm	6.46	0.796	81.6	40.39	\pm	1.42	\pm	4.52
0.90-1.25	1.031	66.9	16.46	±	0.70	±	2.71	1.023	81.6	9.60	±	0.53	±	1.65
			$90 < \theta$	< 10)5					$105 < \theta$	< 12	25		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.458	113.5	109.22	±	2.53	±	6.47
0.50-0.60								0.543	112.8	55.78	\pm	1.67	\pm	5.24
0.60-0.72	0.652	97.1	58.20	\pm	1.82	\pm	5.16	0.652	113.0	21.98	\pm	1.05	\pm	3.15
0.72-0.90	0.792	96.9	20.15	\pm	1.01	\pm	2.58	0.785	113.1	5.92	\pm	0.50	\pm	1.32
0.90-1.25	1.023	96.6	3.70	±	0.33	±	0.70	1.018	111.9	0.92	±	0.14	±	0.32

Table A.29: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in p + Cu $\to \pi^+$ + X interactions with +12.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	9 < 3	30					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	24.9	281.45	±	11.98	±	20.88	0.117	34.7	221.58	±	10.11	±	16.35
0.13-0.16	0.146	24.7	320.66	\pm	11.70	\pm	19.02	0.145	34.7	264.81	\pm	10.42	\pm	15.47
0.16-0.20	0.180	24.8	364.89	\pm	10.48	\pm	18.63	0.181	34.7	280.11	\pm	9.07	\pm	13.79
0.20-0.24	0.220	24.8	399.01	\pm	10.64	\pm	17.16	0.220	34.8	294.64	\pm	9.16	\pm	12.48
0.24-0.30	0.270	24.8	365.79	\pm	8.32	\pm	13.30	0.269	34.7	282.56	\pm	7.27	\pm	10.02
0.30-0.36	0.330	24.7	302.06	\pm	7.42	\pm	9.27	0.329	34.7	224.49	\pm	6.42	\pm	6.95
0.36-0.42	0.390	24.8	235.92	\pm	6.39	\pm	7.19	0.389	34.6	195.41	\pm	5.93	\pm	5.88
0.42-0.50	0.458	24.8	195.63	\pm	5.08	\pm	7.21	0.458	34.7	144.39	\pm	4.39	\pm	5.00
0.50-0.60	0.547	24.9	129.57	\pm	3.56	\pm	6.72	0.546	34.8	99.18	\pm	3.18	\pm	4.77
0.60-0.72	0.655	24.7	76.81	\pm	2.35	\pm	5.97	0.655	34.6	57.06	\pm	2.09	\pm	4.08
0.72-0.90								0.797	34.6	29.91	\pm	1.13	\pm	3.34
			$40 < \theta$) / 5	.n					$50 < \theta$				
n-	/n-\	$\langle \theta \rangle$	40 < 0		$\frac{\partial}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$)		/n_\	$\langle \theta \rangle$	30 < 0	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ 	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$)	
0.10-0.13	$\langle p_{\rm T} \rangle$ 0.116	44.8	215.26	±	10.61		16.73	$\langle p_{\mathrm{T}} \rangle$	\0/		u	0 / upus	4	
0.10-0.13	0.116	44.8	213.26	土	9.37	±	13.44	0.145	55.0	187.53	_	8.57	_	11.58
0.13-0.16	0.145	44.9	232.23	土	9.37 8.07	± ±	11.54	0.145	54.9	187.55	± ±	7.02	± ±	8.96
0.16-0.20	0.180	44.9	232.23	土	8.22	土	10.15	0.181	54.9	180.87	土	6.91	土	7.43
0.20-0.24 0.24-0.30	0.221	44.8	234.68	± ±	6.47	± ±	7.84	0.221	54.8 54.6	174.92	± ±	5.53	± ±	5.75
0.24-0.30	0.269	44.0	179.65	±	5.92	±	5.94	0.270	54.8	129.36	± ±	3.33 4.94	±	4.10
0.30-0.30	0.330	44.7	132.71	±	4.92	±	4.18	0.329	54.6	96.74	土	4.94	т ±	3.23
0.30-0.42	0.389	44.8	104.58	±	3.76	±	3.77	0.390	54.6	75.01	±	3.22	±	2.95
0.42-0.50	0.438	44.8	69.70	±	2.74	±	3.38	0.437	54.6	53.00	土	2.40	т ±	2.93
	1		l					1				1.64		
0.60-0.72	0.654	44.6	39.10	±	1.75	±	2.69	0.654	54.6	31.17	±		±	2.28
0.72-0.90	0.798	44.6	21.55	±	1.00	±	2.21	0.793	54.4	12.31 2.44	± ±	0.77 0.18	± ±	1.30
0.90–1.25								1.025	54.3				Ξ_	0.45
	/	$\langle \theta \rangle$	$60 < \theta$					/	$\langle \theta \rangle$	$75 < \theta$				
p_{T}	$\langle p_{\rm T} \rangle$		164.50		$\frac{2\sigma}{dp}d\Omega$		10.05	$\langle p_{\rm T} \rangle$		100.04		$\sigma/\mathrm{d}p\mathrm{d}\Omega$		((0
0.13-0.16	0.146	67.1	164.53	±	7.06	±	10.25	0.147	82.0	100.94	±	6.33	±	6.68
0.16-0.20	0.180	67.3	157.30	±	5.39	±	7.73	0.180	82.1	124.60	±	5.00	±	5.91
0.20-0.24	0.220	67.0	152.43	±	5.22	±	6.26	0.219	81.8	111.55	±	4.49	±	4.36
0.24-0.30	0.268	67.2	121.97	±	3.96 3.51	±	4.26	0.268	82.0	81.73	± ±	3.24	± ±	3.03
0.30-0.36	0.329	66.7	93.05	\pm		\pm		0.220						2.31
0.36-0.42		((0	l	1			3.32	0.329	81.8	59.42		2.79		1.04
	0.389	66.8	73.19	±	3.08	±	2.79	0.388	81.9	42.19	\pm	2.35	\pm	1.94
0.42-0.50	0.458	66.7	73.19 45.75	\pm	3.08 2.05	\pm	2.79 2.06	0.388 0.459	81.9 81.4	42.19 24.61	$_{\pm}$	2.35 1.51	$_{\pm}^{\pm}$	1.41
0.50-0.60	0.458 0.547	66.7 66.4	73.19 45.75 31.13	± ±	3.08 2.05 1.49	$_{\pm }^{\pm }$	2.79 2.06 1.93	0.388 0.459 0.543	81.9 81.4 81.7	42.19 24.61 18.23	± ± ±	2.35 1.51 1.19	± ± ±	1.41 1.42
0.50-0.60 0.60-0.72	0.458 0.547 0.655	66.7 66.4 66.6	73.19 45.75 31.13 19.32	± ± ±	3.08 2.05 1.49 1.06	± ± ±	2.79 2.06 1.93 1.67	0.388 0.459 0.543 0.653	81.9 81.4 81.7 81.7	42.19 24.61 18.23 8.69	± ± ±	2.35 1.51 1.19 0.69	± ± ±	1.41 1.42 0.94
0.50–0.60 0.60–0.72 0.72–0.90	0.458 0.547 0.655 0.795	66.7 66.4 66.6 66.3	73.19 45.75 31.13 19.32 6.31	± ± ±	3.08 2.05 1.49 1.06 0.44	± ± ±	2.79 2.06 1.93 1.67 0.80	0.388 0.459 0.543 0.653 0.797	81.9 81.4 81.7 81.7 81.4	42.19 24.61 18.23 8.69 3.13	± ± ± ±	2.35 1.51 1.19 0.69 0.34	± ± ± ±	1.41 1.42 0.94 0.47
0.50-0.60 0.60-0.72	0.458 0.547 0.655	66.7 66.4 66.6	73.19 45.75 31.13 19.32 6.31 1.55	± ± ± ±	3.08 2.05 1.49 1.06 0.44 0.13	± ± ±	2.79 2.06 1.93 1.67	0.388 0.459 0.543 0.653	81.9 81.4 81.7 81.7	42.19 24.61 18.23 8.69 3.13 0.48	± ± ± ± ±	2.35 1.51 1.19 0.69 0.34 0.07	± ± ±	1.41 1.42 0.94
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.458 0.547 0.655 0.795 1.030	66.7 66.4 66.6 66.3 65.8	73.19 45.75 31.13 19.32 6.31	± ± ± ± < 10	3.08 2.05 1.49 1.06 0.44 0.13	± ± ± ±	2.79 2.06 1.93 1.67 0.80	0.388 0.459 0.543 0.653 0.797 1.029	81.9 81.4 81.7 81.7 81.4 81.9	42.19 24.61 18.23 8.69 3.13	± ± ± ± ± ±	2.35 1.51 1.19 0.69 0.34 0.07	± ± ± ± ±	1.41 1.42 0.94 0.47
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.458 0.547 0.655 0.795 1.030	66.7 66.4 66.6 66.3 65.8	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline 90 < \theta \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ \text{d}^2 \end{array}$	3.08 2.05 1.49 1.06 0.44 0.13 05 8 \sigma/dpds	± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32	0.388 0.459 0.543 0.653 0.797 1.029	81.9 81.4 81.7 81.7 81.4 81.9	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 12 \\ \hline d^2 \end{array} $	2.35 1.51 1.19 0.69 0.34 0.07 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$	± ± ± ± ±	1.41 1.42 0.94 0.47 0.11
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16	0.458 0.547 0.655 0.795 1.030 $\langle p_{\rm T} \rangle$ 0.147	66.7 66.4 66.6 66.3 65.8 (θ)	$73.19 45.75 31.13 19.32 6.31 1.55 90 < \theta 91.17$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ < 10 $\begin{array}{c} d^2 \\ \pm \\ \end{array}$	3.08 2.05 1.49 1.06 0.44 0.13 05 6.27	± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32	0.388 0.459 0.543 0.653 0.797 1.029 $\langle p_{\rm T} \rangle$ 0.145	81.9 81.4 81.7 81.7 81.4 81.9 $\langle \theta \rangle$ 114.6	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 12 \\ \hline d^2 \end{array} $	2.35 1.51 1.19 0.69 0.34 0.07 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 4.42	± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20	0.458 0.547 0.655 0.795 1.030 $\langle p_{\rm T} \rangle$ 0.147 0.180	66.7 66.4 66.6 66.3 65.8 (θ) 97.4 97.1	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline 90 < \theta \\ \hline \\ 91.17 \\ 110.29 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline \\ < 10 \\ d^2 \\ \pm \\ \pm \end{array}$	3.08 2.05 1.49 1.06 0.44 0.13 05 6.27 4.53	2 ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96	0.388 0.459 0.543 0.653 0.797 1.029 $\langle p_{\rm T} \rangle$ 0.145 0.179	81.9 81.4 81.7 81.7 81.4 81.9 $ \langle \theta \rangle $ $ 114.6$ 114.4	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ 77.60 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline & \pm^{2} \end{array} $ $ \begin{array}{c} < 12 \\ \hline & \pm^{2} \\ \hline & \pm^{2} \end{array} $	2.35 1.51 1.19 0.69 0.34 0.07 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 4.42 3.19	± ± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11 4.92 3.40
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 (θ) 97.4 97.1 97.4	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline 90 < \theta \\ \hline \\ 91.17 \\ 110.29 \\ 83.34 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \hline \\ < 10 \\ \hline \\ d^2 \\ \pm \\ \pm \\ \pm \\ \end{array}$	3.08 2.05 1.49 1.06 0.44 0.13 05 8 \(\sigma \sqrt{dpds}\) 6.27 4.53 3.87	2 ± ± ± ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08	0.388 0.459 0.543 0.653 0.797 1.029 $\langle p_{\rm T} \rangle$ 0.145 0.179 0.218	81.9 81.4 81.7 81.7 81.4 81.9	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ 77.60 \\ 56.94 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \hline \pm \\ \hline & \pm^2 \end{array} $ $ \begin{array}{c} < 12 \\ \hline & \pm^2 \\ \hline & \pm^2 \\ \pm \\ & \pm \end{array} $	2.35 1.51 1.19 0.69 0.34 0.07 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 4.42 3.19 2.84	± ± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 97.4 97.1 97.4 97.1	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \hline \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ \end{array}$	± ± ± ± d ² d ² ± ± ± ± ±	3.08 2.05 1.49 1.06 0.44 0.13 05 6.27 4.53 3.87 2.77	2 ± ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22	0.388 0.459 0.543 0.653 0.797 1.029 $\langle p_{\rm T} \rangle$ 0.145 0.179 0.218 0.265	81.9 81.4 81.7 81.7 81.4 81.9	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline & \\ \hline & \\ \hline & \\ & \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \end{array} $	$\begin{array}{c} 2.35 \\ 1.51 \\ 1.19 \\ 0.69 \\ 0.34 \\ 0.07 \\ \hline \\ 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ 4.42 \\ 3.19 \\ 2.84 \\ 1.73 \\ \end{array}$	2 ± ± ± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \hline \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.327 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 (θ) 97.4 97.1 97.4 97.1 97.2	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \hline \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ 37.77 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ < 10 $\begin{array}{c} d^2 \\ \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$	3.08 2.05 1.49 1.06 0.44 0.13 05 6.27 4.53 3.87 2.77 2.28	2 ± ± ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22 1.88	$\begin{array}{c} 0.388 \\ 0.459 \\ 0.543 \\ 0.653 \\ 0.797 \\ 1.029 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.265 \\ 0.327 \\ \end{array}$	$\begin{array}{c} 81.9 \\ 81.4 \\ 81.7 \\ 81.7 \\ 81.4 \\ 81.9 \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ 20.06 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \hline \pm \\ \hline & \pm^2 \\ \hline & \pm^2 \\ \hline & \pm^2 \\ \pm \\ & \pm \\ & \pm \end{array} $	$\begin{array}{c} 2.35 \\ 1.51 \\ 1.19 \\ 0.69 \\ 0.34 \\ 0.07 \\ \hline \\ 25 \\ \hline \sigma/dpdS \\ 4.42 \\ 3.19 \\ 2.84 \\ 1.73 \\ 1.40 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38 1.28
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.327 \\ 0.387 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 (θ) 97.4 97.1 97.4 97.1 97.2 96.8	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \hline \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ 37.77 \\ 26.60 \\ \end{array}$	± ± ± ± d ² d ² ± ± ± ± ± ± ± ± ±	3.08 2.05 1.49 1.06 0.44 0.13 05 6.27 4.53 3.87 2.77 2.28 1.86	± ± ± ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22 1.88 1.65	$\begin{array}{c} 0.388 \\ 0.459 \\ 0.543 \\ 0.653 \\ 0.797 \\ 1.029 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.265 \\ 0.327 \\ 0.388 \\ \end{array}$	81.9 81.4 81.7 81.7 81.4 81.9 (φ) 114.6 114.4 113.8 113.3 114.0 112.9	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ 20.06 \\ 12.94 \\ \end{array}$	± ± ± ± ± d² d² ± ± ± ± ± ± ± ±	2.35 1.51 1.19 0.69 0.34 0.07 25 $\sigma/\mathrm{d}p\mathrm{d}S$ 4.42 3.19 2.84 1.73 1.40 1.12	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38 1.28 1.13
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \hline \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 97.4 97.1 97.4 97.1 97.2 96.8 96.7	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \hline \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ 37.77 \\ 26.60 \\ 15.66 \\ \end{array}$	± ± ± ± d ² d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.08 2.05 1.49 1.06 0.44 0.13 05 6.27 4.53 3.87 2.77 2.28 1.86 1.22	2 ± ± ± ± ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22 1.88 1.65 1.28	$\begin{array}{c} 0.388 \\ 0.459 \\ 0.543 \\ 0.653 \\ 0.797 \\ 1.029 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.265 \\ 0.327 \\ 0.388 \\ 0.455 \\ \end{array}$	81.9 81.4 81.7 81.7 81.4 81.9 (θ) 114.6 114.4 113.8 113.3 114.0 112.9 113.2	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \hline \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ 20.06 \\ 12.94 \\ 6.89 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	2.35 1.51 1.19 0.69 0.34 0.07 25 $\sigma/\mathrm{d}p\mathrm{d}S$ 4.42 3.19 2.84 1.73 1.40 1.12 0.68	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38 1.28 1.13 0.79
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \hline \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.538 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 97.4 97.1 97.4 97.1 97.2 96.8 96.7 96.9	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ 37.77 \\ 26.60 \\ 15.66 \\ 8.93 \\ \end{array}$	± ± ± ± d ²	3.08 2.05 1.49 1.06 0.44 0.13 05 7 / dpdS 6.27 4.53 3.87 2.77 2.28 1.86 1.22 0.79	\(\frac{\pmu}{\pmu}\) \(\frac{\pmu}{\pmu}\) \(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\) \(\	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22 1.88 1.65 1.28 1.00		81.9 81.4 81.7 81.7 81.4 81.9 (φ) 114.6 114.4 113.8 113.3 114.0 112.9 113.2 112.1	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ 20.06 \\ 12.94 \\ 6.89 \\ 3.19 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	$\begin{array}{c} 2.35 \\ 1.51 \\ 1.19 \\ 0.69 \\ 0.34 \\ 0.07 \\ \hline \\ 25 \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38 1.28 1.13 0.79 0.47
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.538 \\ 0.655 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 97.4 97.1 97.4 97.1 97.2 96.8 96.7 96.9 96.3	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ 37.77 \\ 26.60 \\ 15.66 \\ 8.93 \\ 4.10 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ \mathrm{d}^{2} \\ \pm \\ \end{array}$	3.08 2.05 1.49 1.06 0.44 0.13 05 7 / dpdS 6.27 4.53 3.87 2.77 2.77 2.28 1.86 1.22 0.79 0.51	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22 1.88 1.65 1.28 1.00 0.61	$ \begin{array}{c} 0.388 \\ 0.459 \\ 0.543 \\ 0.653 \\ 0.797 \\ 1.029 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.265 \\ 0.327 \\ 0.388 \\ 0.455 \\ 0.544 \\ 0.653 \\ \end{array} $	81.9 81.4 81.7 81.7 81.4 81.9 (φ) 114.6 114.4 113.8 113.3 114.0 112.9 113.2 112.1 110.0	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ 20.06 \\ 12.94 \\ 6.89 \\ 3.19 \\ 0.77 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline \\ < 12 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	$\begin{array}{c} 2.35 \\ 1.51 \\ 1.19 \\ 0.69 \\ 0.34 \\ 0.07 \\ \hline \\ 25 \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	\frac{\pmu}{\pmu} \frac{\pmu}{	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38 1.28 1.13 0.79 0.47 0.15
0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$ \begin{array}{c} 0.458 \\ 0.547 \\ 0.655 \\ 0.795 \\ 1.030 \\ \hline \\ \hline \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.538 \\ \end{array} $	66.7 66.4 66.6 66.3 65.8 97.4 97.1 97.4 97.1 97.2 96.8 96.7 96.9	$\begin{array}{c} 73.19 \\ 45.75 \\ 31.13 \\ 19.32 \\ 6.31 \\ 1.55 \\ \hline \\ 90 < \theta \\ \\ 91.17 \\ 110.29 \\ 83.34 \\ 59.28 \\ 37.77 \\ 26.60 \\ 15.66 \\ 8.93 \\ \end{array}$	± ± ± ± d ²	3.08 2.05 1.49 1.06 0.44 0.13 05 7 / dpdS 6.27 4.53 3.87 2.77 2.28 1.86 1.22 0.79	\(\frac{\pmu}{\pmu}\) \(\frac{\pmu}{\pmu}\) \(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\) \(\	2.79 2.06 1.93 1.67 0.80 0.32 5.95 4.96 3.08 2.22 1.88 1.65 1.28 1.00		81.9 81.4 81.7 81.7 81.4 81.9 (φ) 114.6 114.4 113.8 113.3 114.0 112.9 113.2 112.1	$\begin{array}{c} 42.19 \\ 24.61 \\ 18.23 \\ 8.69 \\ 3.13 \\ 0.48 \\ \hline \\ 105 < \theta \\ \\ 91.42 \\ 77.60 \\ 56.94 \\ 30.92 \\ 20.06 \\ 12.94 \\ 6.89 \\ 3.19 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	$\begin{array}{c} 2.35 \\ 1.51 \\ 1.19 \\ 0.69 \\ 0.34 \\ 0.07 \\ \hline \\ 25 \\ \hline \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	1.41 1.42 0.94 0.47 0.11 4.92 3.40 2.16 1.38 1.28 1.13 0.79 0.47

Table A.30: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in p + Cu $\to \pi^-$ + X interactions with +12.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	0 < 3	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.115	25.0	326.83	±	12.68	±	24.69	0.115	34.9	292.28	±	11.78	±	22.30
0.13-0.16	0.145	24.8	364.51	\pm	12.06	\pm	21.44	0.145	34.8	286.16	\pm	10.51	\pm	17.12
0.16-0.20	0.180	24.7	376.49	\pm	10.23	\pm	18.53	0.180	34.9	298.02	\pm	9.25	\pm	14.91
0.20-0.24	0.219	24.9	374.27	\pm	10.15	\pm	15.63	0.220	34.7	296.19	\pm	9.07	\pm	12.46
0.24-0.30	0.269	24.9	319.49	\pm	7.56	\pm	10.73	0.269	34.9	264.33	\pm	6.96	\pm	8.99
0.30-0.36	0.329	24.9	251.23	\pm	6.70	\pm	7.30	0.328	34.8	206.68	\pm	6.08	\pm	6.07
0.36-0.42	0.389	24.9	197.17	\pm	5.93	\pm	5.97	0.388	34.8	163.96	\pm	5.32	\pm	5.00
0.42-0.50	0.458	25.0	147.84	\pm	4.49	\pm	5.50	0.458	34.7	119.10	\pm	3.96	\pm	4.38
0.50-0.60	0.545	25.0	98.46	\pm	3.25	\pm	5.08	0.547	34.9	84.65	\pm	2.99	\pm	4.29
0.60-0.72	0.652	24.8	52.49	\pm	2.05	\pm	3.86	0.654	34.5	45.77	\pm	1.91	\pm	3.33
0.72-0.90								0.794	34.6	16.78	\pm	0.89	\pm	1.79
			$40 < \theta$) < 5	50					$50 < \theta$	< 60)		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	45.0	239.23	±	11.23	±	19.07	\r 1 /	127			/ -F		
0.13-0.16	0.116	44.9	251.71	±	10.04	\pm	15.29	0.145	54.7	202.31	\pm	9.04	\pm	12.68
0.16-0.20	0.143	44.7	241.55	±	8.23	士	12.22	0.143	54.8	207.90	\pm	7.60	\pm	10.51
0.20-0.24	0.220	44.9	224.50	±	7.76	\pm	9.68	0.220	54.8	175.49	\pm	6.94	\pm	7.48
0.24-0.30	0.269	44.8	210.40	\pm	6.27	\pm	7.24	0.269	54.9	161.38	\pm	5.48	\pm	5.62
0.30-0.36	0.329	44.7	157.98	\pm	5.37	\pm	4.71	0.329	54.9	120.26	\pm	4.72	\pm	3.73
0.36-0.42	0.389	44.7	124.03	\pm	4.62	\pm	3.96	0.387	54.7	92.12	\pm	4.07	\pm	3.11
0.42-0.50	0.456	44.6	93.95	\pm	3.51	\pm	3.68	0.456	55.0	67.06	\pm	2.99	\pm	2.79
0.50-0.60	0.546	44.7	57.45	\pm	2.38	\pm	3.16	0.546	54.7	41.24	\pm	2.00	\pm	2.45
0.60-0.72	0.655	45.0	30.28	\pm	1.55	\pm	2.37	0.651	54.8	24.55	\pm	1.48	\pm	1.96
0.72-0.90	0.802	44.6	14.17	\pm	0.87	\pm	1.55	0.799	54.6	8.74	\pm	0.65	\pm	1.03
0.90-1.25								1.039	54.2	1.76	\pm	0.19	\pm	0.32
			$60 < \theta$) / 7	75					$75 < \theta$	< 90	<u> </u>		
1	1		00 < 0		J									
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$	00 < 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	10 < 0		$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
p _T 0.13–0.16	$\langle p_{\mathrm{T}} \rangle$ 0.145	(θ) 67.8	180.39		$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.03}$	Ω ±	10.84	$\langle p_{\mathrm{T}} \rangle$ 0.147	⟨θ⟩ 83.0	124.05		$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.88}$	Ω ±	8.96
				d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$		10.84 7.82		. ,		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$		8.96 6.03
0.13-0.16	0.145	67.8	180.39	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.03}$	\pm		0.147	83.0	124.05	$\frac{\mathrm{d}^2}{\pm}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.88}$	\pm	
0.13-0.16 0.16-0.20	0.145 0.179	67.8 67.1	180.39 166.74	d ² ± ±	$\frac{2\sigma/dpd\Omega}{9.03}$ 5.59	± ±	7.82	0.147 0.180	83.0 82.0	124.05 131.73	d ² ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.88}$ 4.96	± ±	6.03
0.13-0.16 0.16-0.20 0.20-0.24	0.145 0.179 0.219	67.8 67.1 67.1	180.39 166.74 149.15	# # #	$\frac{2\sigma/dpd\Omega}{9.03}$ 5.59 5.26	± ± ±	7.82 5.88	0.147 0.180 0.219	83.0 82.0 81.6	124.05 131.73 110.61	# # #	9.88 4.96 4.46	± ± ±	6.03 4.20
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.179 0.219 0.268	67.8 67.1 67.1 67.0	180.39 166.74 149.15 118.05	# # # #	9.03 5.59 5.26 3.88	± ± ±	7.82 5.88 4.12	0.147 0.180 0.219 0.269	83.0 82.0 81.6 82.1	124.05 131.73 110.61 84.71	# # # #	9.88 4.96 4.46 3.28	± ± ±	6.03 4.20 3.10
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.179 0.219 0.268 0.329	67.8 67.1 67.1 67.0 66.9	180.39 166.74 149.15 118.05 83.91	# # # # # #	$\frac{2\sigma/dpd\Omega}{9.03}$ 5.59 5.26 3.88 3.21	± ± ± ± ± ± ±	7.82 5.88 4.12 2.63	0.147 0.180 0.219 0.269 0.329	83.0 82.0 81.6 82.1 81.7	124.05 131.73 110.61 84.71 59.92	# # # # # #	9.88 4.96 4.46 3.28 2.84	± ± ± ± ± ± ±	6.03 4.20 3.10 2.75
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.179 0.219 0.268 0.329 0.388	67.8 67.1 67.1 67.0 66.9 66.9	180.39 166.74 149.15 118.05 83.91 68.02	# ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd\Omega}{9.03}$ 5.59 5.26 3.88 3.21 2.95	± ± ± ± ±	7.82 5.88 4.12 2.63 2.68	0.147 0.180 0.219 0.269 0.329 0.389	83.0 82.0 81.6 82.1 81.7 81.7	124.05 131.73 110.61 84.71 59.92 41.30	d ² ± ± ± ± ± ± ±	$\sigma/dpd\Omega$ 9.88 4.96 4.46 3.28 2.84 2.29	± ± ± ± ±	6.03 4.20 3.10 2.75 2.03
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.179 0.219 0.268 0.329 0.388 0.459 0.546 0.654	67.8 67.1 67.1 67.0 66.9 66.9 66.6	180.39 166.74 149.15 118.05 83.91 68.02 45.59	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.03}$ 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88	± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0	124.05 131.73 110.61 84.71 59.92 41.30 29.03 15.00 6.72	d ² ± ± ± ± ± ± ± ± ±	$\sigma/dpd\Omega$ 9.88 4.96 4.46 3.28 2.84 2.29 1.68	± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.219 0.268 0.329 0.388 0.459 0.546 0.654 0.798	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3	180.39 166.74 149.15 118.05 83.91 68.02 45.59 29.06 13.96 5.16	d ² ± ± ± ± ± ± ± ± ±	9.03 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88 0.40	± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654 0.794	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0	124.05 131.73 110.61 84.71 59.92 41.30 29.03 15.00 6.72 2.87	d ² ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31	* * * * * * * * * * * *	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.179 0.219 0.268 0.329 0.388 0.459 0.546 0.654	67.8 67.1 67.1 67.0 66.9 66.9 66.6 67.2 66.8	180.39 166.74 149.15 118.05 83.91 68.02 45.59 29.06 13.96 5.16 1.29	d ² ± ± ± ± ± ± ± ± ± ±	9.03 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88 0.40 0.15	± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0	124.05 131.73 110.61 84.71 59.92 41.30 29.03 15.00 6.72 2.87 0.29	d ² ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07	± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.219 0.268 0.329 0.388 0.459 0.546 0.654 0.798	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8	180.39 166.74 149.15 118.05 83.91 68.02 45.59 29.06 13.96 5.16	d ² ± ± ± ± ± ± ± ± ± ±	9.03 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88 0.40 0.15	± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654 0.794	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 81.0	124.05 131.73 110.61 84.71 59.92 41.30 29.03 15.00 6.72 2.87	d ² ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07	* * * * * * * * * * * * *	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.219 0.268 0.329 0.388 0.459 0.546 0.654 0.798	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3	180.39 166.74 149.15 118.05 83.91 68.02 45.59 29.06 13.96 5.16 1.29	d ² ± ± ± ± ± ± ± ± ± ± = < 10	9.03 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88 0.40 0.15	* * * * * * * * * * * * *	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654 0.794	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0	124.05 131.73 110.61 84.71 59.92 41.30 29.03 15.00 6.72 2.87 0.29	d ² ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31	* * * * * * * * * * * * *	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ \hline \end{array} $	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ $	9.03 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88 0.40 0.15 0.5 2 \(\sigma \) \(\delta	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654 0.794 1.016	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 81.0	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105 < \theta \\ \hline \end{array}$	d ² ± ± ± ± ± ± ± d ² d ² ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \langle p_{\rm T} \rangle \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 13.96 \\ 5.16 \\ 1.29 \\ \\ \end{array}$		9.03 5.59 5.26 3.88 3.21 2.95 2.01 1.43 0.88 0.40 0.15 0.5 2 \(\sigma / \delta \) \(\delta \) \	± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654 0.794 1.016	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \end{array}$		9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.9 66.6 67.2 66.8 66.3 66.8 (θ) 97.9 97.7 97.5	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \hline \\ 150.43 \\ 99.98 \\ 84.55 \\ \end{array}$	d ²	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.5 \\ 8.58 \\ 4.24 \\ 4.01 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ \end{array} $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	9.88 4.96 4.46 3.28 2.84 2.29 1.68 0.59 0.31 0.07 25 6 /dpd9 4.62 3.34 2.70	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.9 66.6 67.2 66.8 66.3 66.8 97.9 97.7 97.5 97.0	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \hline \\ 150.43 \\ 99.98 \\ 84.55 \\ 58.08 \\ \end{array}$	d4	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline \\ 0.5 \\ \hline \\ 0.5 \\ \hline \\ 0.88 \\ 4.24 \\ 4.01 \\ 2.73 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \hline $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (\(\text{\titt{\text{\titt{\text{\ti}\text{\texi{\text{\texi\texi{\text{\texi{\text{\texi{\texi{\texi\tint{\texi{\texi}\titt{\texi}\titt{\texi}\titi	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07 25 6 /dpd9 4.62 3.34 2.70 1.68	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.327 \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8 77.9 97.7 97.5 97.0 96.9	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \hline \\ 150.43 \\ 99.98 \\ 84.55 \\ 58.08 \\ 33.17 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline 05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.58 \\ 4.24 \\ 4.01 \\ 2.73 \\ 2.06 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18 1.66	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ \end{array} $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (\(\theta\)\) 114.2 114.0 113.9 113.9	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105 < \theta \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ 18.60 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07 25 σ/dpdS 4.62 3.34 2.70 1.68 1.33	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.327 \\ 0.389 \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.9 66.6 67.2 66.8 66.3 66.8 97.9 97.7 97.5 97.0 96.9 97.0	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 5.16 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 150.43 \\ 99.98 \\ 84.55 \\ 58.08 \\ 33.17 \\ 21.10 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S\\ \hline 9.03\\ 5.59\\ 5.26\\ 3.88\\ 3.21\\ 2.95\\ 2.01\\ 1.43\\ 0.88\\ 0.40\\ 0.15\\ \hline 05\\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S\\ 8.58\\ 4.24\\ 4.01\\ 2.73\\ 2.06\\ 1.63\\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18 1.66 1.42	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.386 \\ \end{array} $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (\(\theta\)\) 114.2 114.0 113.9 113.6 114.0	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105 < \theta \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ 18.60 \\ 9.78 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07 25 σ/dpds 4.62 3.34 2.70 1.68 1.33 0.93	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07 6.02 3.23 2.05 1.49 1.36 0.97
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.327 \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8 97.9 97.7 97.5 97.0 96.9 97.0 96.7	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 5.16 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 84.55 \\ 58.08 \\ 33.17 \\ 21.10 \\ 14.96 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline \\ 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.58 \\ 4.24 \\ 4.01 \\ 2.73 \\ 2.06 \\ 1.63 \\ 1.18 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18 1.66	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ \end{array} $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (\(\theta\)\) 114.2 114.0 113.9 113.9	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ 18.60 \\ 9.78 \\ 5.09 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07 25 σ/dpds 4.62 3.34 2.70 1.68 1.33 0.93 0.58	# # # # # # # # # # # # # # # # # # #	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07 6.02 3.23 2.05 1.49 1.36 0.97 0.65
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.327 \\ 0.389 \\ \end{array} $	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8 97.9 97.7 97.5 97.0 96.9 97.0 96.7 97.3	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 150.43 \\ 99.98 \\ 84.55 \\ 58.08 \\ 33.17 \\ 21.10 \\ 14.96 \\ 5.37 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline \\ 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.58 \\ 4.24 \\ 4.01 \\ 2.73 \\ 2.06 \\ 1.63 \\ 1.18 \\ 0.59 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18 1.66 1.42	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.386 \\ \end{array} $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (\(\theta\)\) 114.2 114.0 113.9 113.6 114.0	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ 18.60 \\ 9.78 \\ 5.09 \\ 2.44 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07 25 σ/dpds 4.62 3.34 2.70 1.68 1.33 0.93	\(\frac{\pm}{\pm}\) \(\pm\) \(6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07 6.02 3.23 2.05 1.49 1.36 0.97
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.459 \\ 0.546 \\ 0.654 \\ 0.798 \\ 1.036 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.327 \\ 0.389 \\ 0.458 \\ \hline \end{array} $	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8 97.9 97.7 97.5 97.0 96.9 97.0 96.7	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 5.16 \\ 13.96 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 84.55 \\ 58.08 \\ 33.17 \\ 21.10 \\ 14.96 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline \\ 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.58 \\ 4.24 \\ 4.01 \\ 2.73 \\ 2.06 \\ 1.63 \\ 1.18 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18 1.66 1.42 1.35	$ \begin{array}{c} 0.147 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.544 \\ 0.654 \\ 0.794 \\ 1.016 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.386 \\ 0.461 \\ \end{array} $	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (\(\theta\)\) 114.2 114.0 113.9 113.6 114.0 112.5	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ 18.60 \\ 9.78 \\ 5.09 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.88 4.96 4.46 3.28 2.84 2.29 1.68 1.05 0.59 0.31 0.07 25 σ/dpds 4.62 3.34 2.70 1.68 1.33 0.93 0.58	# # # # # # # # # # # # # # # # # # #	6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07 6.02 3.23 2.05 1.49 1.36 0.97 0.65
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.179 0.219 0.268 0.329 0.388 0.459 0.546 0.654 0.798 1.036 (p _T) 0.147 0.179 0.219 0.268 0.327 0.389 0.458 0.554	67.8 67.1 67.1 67.0 66.9 66.6 67.2 66.8 66.3 66.8 97.9 97.7 97.5 97.0 96.9 97.0 96.7 97.3	$\begin{array}{c} 180.39 \\ 166.74 \\ 149.15 \\ 118.05 \\ 83.91 \\ 68.02 \\ 45.59 \\ 29.06 \\ 5.16 \\ 1.29 \\ \hline \\ 90 < \theta \\ \\ \end{array}$ $\begin{array}{c} 90 < \theta \\ \\ 150.43 \\ 99.98 \\ 84.55 \\ 58.08 \\ 33.17 \\ 21.10 \\ 14.96 \\ 5.37 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.03 \\ 5.59 \\ 5.26 \\ 3.88 \\ 3.21 \\ 2.95 \\ 2.01 \\ 1.43 \\ 0.88 \\ 0.40 \\ 0.15 \\ \hline \\ 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.58 \\ 4.24 \\ 4.01 \\ 2.73 \\ 2.06 \\ 1.63 \\ 1.18 \\ 0.59 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.82 5.88 4.12 2.63 2.68 2.16 1.89 1.25 0.67 0.24 10.95 4.70 3.21 2.18 1.66 1.42 1.35 0.66	0.147 0.180 0.219 0.269 0.329 0.389 0.456 0.544 0.654 0.794 1.016 $\langle p_{\rm T} \rangle$ 0.144 0.179 0.218 0.266 0.329 0.386 0.461 0.540	83.0 82.0 81.6 82.1 81.7 81.7 82.0 81.3 81.0 80.5 (θ) 114.2 114.0 113.9 113.6 114.0 112.5 110.8	$\begin{array}{c} 124.05 \\ 131.73 \\ 110.61 \\ 84.71 \\ 59.92 \\ 41.30 \\ 29.03 \\ 15.00 \\ 6.72 \\ 2.87 \\ 0.29 \\ \hline \\ 105.22 \\ 81.51 \\ 51.06 \\ 29.62 \\ 18.60 \\ 9.78 \\ 5.09 \\ 2.44 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{9.88} $ $ 4.96$ $ 4.46$ $ 3.28$ $ 2.84$ $ 2.29$ $ 1.68$ $ 1.05$ $ 0.59$ $ 0.31$ $ 0.07$ $ 25$ $ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{4.62} $ $ 3.34$ $ 2.70$ $ 1.68$ $ 1.33$ $ 0.93$ $ 0.58$ $ 0.37$	\(\frac{\pm}{\pm}\) \(\pm\) \(6.03 4.20 3.10 2.75 2.03 1.88 1.27 0.79 0.45 0.07 6.02 3.23 2.05 1.49 1.36 0.97 0.65 0.41

Table A.31: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^+ + Cu \to p + X interactions with +12.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta$		-					$30 < \theta$	-			
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.20-0.24	0.220	25.3	437.21	\pm	38.51	\pm	24.01							
0.24-0.30	0.269	25.4	363.91	\pm	27.78	\pm	17.84	0.270	35.0	427.50	\pm	30.30	\pm	19.21
0.30-0.36	0.326	25.3	260.19	\pm	24.03	\pm	12.33	0.330	35.0	365.49	\pm	26.84	\pm	14.25
0.36-0.42	0.388	25.5	264.55	\pm	24.08	\pm	11.77	0.387	34.9	287.49	\pm	24.90	\pm	11.26
0.42-0.50	0.457	25.1	199.36	\pm	17.63	\pm	8.76	0.460	34.7	244.14	\pm	20.20	\pm	10.61
0.50-0.60	0.548	25.0	142.09	\pm	13.19	\pm	6.47	0.548	35.3	152.57	\pm	14.55	\pm	7.72
0.60-0.72	0.658	25.3	119.47	\pm	10.95	\pm	6.21	0.651	35.7	106.63	\pm	10.85	\pm	6.04
0.72-0.90								0.804	34.6	70.57	\pm	7.12	\pm	5.30
			$40 < \theta$	9 < 5	50					$50 < \theta$	< 6	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.30-0.36	0.328	45.4	395.18	\pm	27.60	\pm	13.00							
0.36-0.42	0.389	44.9	336.01	\pm	25.42	\pm	10.15	0.387	55.1	365.20	\pm	25.67	\pm	11.57
0.42-0.50	0.462	45.1	252.58	\pm	19.98	\pm	8.43	0.458	54.9	267.82	\pm	19.70	\pm	7.99
0.50-0.60	0.546	44.9	155.63	\pm	14.43	\pm	7.13	0.549	55.0	166.94	\pm	14.60	\pm	6.78
0.60-0.72	0.651	45.4	102.53	\pm	10.95	\pm	6.11	0.650	54.5	122.47	\pm	12.01	\pm	7.56
0.72-0.90	0.802	45.1	65.69	\pm	7.35	\pm	5.31	0.794	54.9	70.28	\pm	7.77	\pm	5.94
0.90-1.25	1.027	45.2	18.07	\pm	2.71	\pm	2.28	1.058	55.1	17.36	\pm	2.69	\pm	2.23
			$60 < \theta$							$75 < \theta$	< 9	0		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.50-0.60	0.547	67.9	195.54	\pm	12.07	\pm	8.04							
0.60-0.72	0.655	67.1	113.37	\pm	8.95	\pm	6.74	0.656	81.7	79.73	\pm	7.01	\pm	5.76
0.72-0.90	0.796	66.6	42.30	\pm	4.84	\pm	4.16	0.799	81.5	31.56	\pm	4.20	\pm	3.64
0.90-1.25	1.050	66.9	10.18	\pm	1.81	\pm	1.69	1.012	81.6	8.14	\pm	1.65	\pm	1.45
			$90 < \theta$	< 1	05					$105 < \theta$	< 1	25		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\rm T} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.42-0.50								0.459	114.0	109.69	\pm	8.39	\pm	6.58
0.50-0.60								0.548	113.8	48.02	\pm	5.13	\pm	4.53
0.60-0.72	0.650	97.0	61.58	\pm	6.21	\pm	5.50	0.658	112.6	22.73	\pm	3.54	\pm	3.25
0.72-0.90	0.798	97.1	16.33	\pm	3.04	\pm	2.15	0.794	111.3	6.50	\pm	1.72	\pm	1.44
0.90-1.25	1.027	98.1	2.93	±	1.00	±	0.58	1.043	109.1	0.89	±	0.46	\pm	0.31

Table A.32: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^+ + Cu $\to \pi^+$ + X interactions with +12.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1			$20 < \ell$	0 < 3	80					$30 < \theta$	< 4	0		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.115	25.5	229.78	\pm	35.11	±	16.40	0.115	34.5	308.80	±	39.19	±	22.59
0.13-0.16	0.146	25.1	293.82	\pm	36.83	\pm	17.62	0.147	34.8	252.81	\pm	33.90	\pm	15.05
0.16-0.20	0.180	24.6	398.64	\pm	37.08	\pm	20.71	0.181	35.6	270.35	\pm	30.33	\pm	13.64
0.20-0.24	0.219	24.8	384.29	\pm	34.64	\pm	16.70	0.221	34.6	237.77	\pm	27.37	\pm	10.21
0.24-0.30	0.270	24.9	405.96	\pm	29.38	\pm	14.99	0.269	35.0	309.70	\pm	25.58	\pm	11.14
0.30-0.36	0.331	25.1	356.39	\pm	26.97	\pm	11.12	0.327	34.3	257.19	\pm	22.78	\pm	8.09
0.36-0.42	0.388	24.6	276.02	\pm	22.78	\pm	8.52	0.391	34.8	165.35	\pm	18.09	\pm	5.04
0.42-0.50	0.460	24.4	225.08	\pm	18.00	\pm	8.35	0.460	34.6	138.72	\pm	14.33	\pm	4.85
0.50-0.60	0.548	24.9	127.16	\pm	11.84	\pm	6.62	0.549	34.9	112.82	\pm	11.44	\pm	5.44
0.60-0.72	0.656	24.9	100.80	\pm	9.21	\pm	7.84	0.655	35.2	56.93	\pm	6.96	\pm	4.07
0.72-0.90								0.792	34.7	33.31	\pm	4.02	\pm	3.72
			$40 < \ell$) < 5	50					$50 < \theta$	< 6	0		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	-5 0		$\frac{\partial}{\partial \sigma} / \mathrm{d}p \mathrm{d}\Omega$	2		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\frac{\sigma}{\sigma/dpd\Omega}$	2	
0.10-0.13	0.112	44.5	206.02	±	34.75	±	15.53	\r 1 /	1.7			, -r		
0.13-0.16	0.144	45.5	213.58	\pm	31.21	\pm	12.73	0.145	54.8	207.55	\pm	31.24	\pm	12.97
0.16-0.20	0.179	45.0	241.50	\pm	27.73	\pm	12.21	0.185	55.9	122.87	\pm	19.61	\pm	6.21
0.20-0.24	0.218	44.8	208.10	\pm	26.11	\pm	9.17	0.220	55.7	159.14	\pm	22.20	\pm	6.85
0.24-0.30	0.268	44.6	207.12	\pm	21.00	\pm	7.45	0.267	54.9	126.34	\pm	16.34	\pm	4.63
0.30-0.36	0.331	44.1	166.21	\pm	18.86	\pm	5.54	0.329	54.3	117.78	\pm	15.33	\pm	3.74
0.36-0.42	0.389	44.7	160.12	\pm	17.88	\pm	5.08	0.391	54.4	102.59	\pm	14.59	\pm	3.43
0.42-0.50	0.457	44.3	98.10	\pm	12.10	\pm	3.56	0.463	54.2	84.28	\pm	11.30	\pm	3.32
0.50-0.60	0.551	44.7	76.09	\pm	9.42	\pm	3.69	0.552	54.7	49.61	\pm	7.73	\pm	2.60
0.60-0.72	0.650	44.6	39.93	\pm	5.95	\pm	2.74	0.653	55.1	36.65	\pm	5.92	\pm	2.68
0.72-0.90	0.814	44.4	21.81	\pm	3.37	\pm	2.24	0.785	54.6	14.72	\pm	2.87	\pm	1.55
0.90-1.25								1.051	53.5	2.15	\pm	0.53	\pm	0.40
	-													
			$60 < \theta$	1 < 7	75					$75 < \theta$	< 90	0		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	$60 < \theta$		$\frac{75}{2\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$	$75 < \theta$		$\frac{0}{2\sigma/\mathrm{d}p\mathrm{d}s}$	2	
p _T 0.13–0.16	$\langle p_{\rm T} \rangle$ 0.146	(θ) 66.9	60 < 6			Ω ±	10.74	$\langle p_{\rm T} \rangle$ 0.147	⟨θ⟩ 83.2	$75 < \theta$ 100.45			Ω ±	8.00
				d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		10.74 7.73				d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		8.00 6.17
0.13-0.16	0.146	66.9	170.62	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{24.48}$	\pm		0.147	83.2	100.45	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{21.15}$	\pm	
0.13-0.16 0.16-0.20	0.146 0.179	66.9 67.0	170.62 154.44	d ² ± ±	$\frac{2\sigma/dpd9}{24.48}$ 18.06	± ±	7.73	0.147 0.178	83.2 82.6	100.45 128.45	d ² ± ±	$\frac{2\sigma/dpd9}{21.15}$	± ±	6.17
0.13-0.16 0.16-0.20 0.20-0.24	0.146 0.179 0.219	66.9 67.0 67.1	170.62 154.44 149.58	# # #	$\frac{2\sigma/dpd9}{24.48}$ 18.06 17.52	± ± ±	7.73 6.25	0.147 0.178 0.217	83.2 82.6 82.2	100.45 128.45 124.69	# # #	$\frac{2\sigma/dpd9}{21.15}$ 17.20 16.22	± ± ±	6.17 4.98
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.146 0.179 0.219 0.265	66.9 67.0 67.1 67.3	170.62 154.44 149.58 92.32	# # # #	2σ/dpd9 24.48 18.06 17.52 11.34	± ± ±	7.73 6.25 3.23	0.147 0.178 0.217 0.264	83.2 82.6 82.2 82.5	100.45 128.45 124.69 85.10	# # # #	$\frac{2\sigma/dpd9}{21.15}$ 17.20 16.22 11.15	± ± ±	6.17 4.98 3.26
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.179 0.219 0.265 0.331	66.9 67.0 67.1 67.3 67.0	170.62 154.44 149.58 92.32 99.89	± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{24.48}$ 18.06 17.52 11.34 12.03 10.32 6.89	± ± ± ± ± ± ±	7.73 6.25 3.23 3.48	0.147 0.178 0.217 0.264 0.333	83.2 82.6 82.2 82.5 80.7	100.45 128.45 124.69 85.10 34.16 41.97 25.02	# ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{21.15}$ 17.20 16.22 11.15 7.04 7.72 5.05	± ± ± ± ± ± ±	6.17 4.98 3.26 1.30
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.146 0.179 0.219 0.265 0.331 0.390	66.9 67.0 67.1 67.3 67.0 67.6	170.62 154.44 149.58 92.32 99.89 74.69	d ² ± ± ± ± ± ± ±	$\frac{2}{\sigma/dpd9}$ 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25	± ± ± ± ±	7.73 6.25 3.23 3.48 2.80	0.147 0.178 0.217 0.264 0.333 0.394	83.2 82.6 82.2 82.5 80.7 80.1	100.45 128.45 124.69 85.10 34.16 41.97 25.02 23.82	d ² ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{21.15}$ 17.20 16.22 11.15 7.04 7.72	± ± ± ± ±	6.17 4.98 3.26 1.30 1.89
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3	170.62 154.44 149.58 92.32 99.89 74.69 45.89 34.68 12.68	d ² ± ± ± ± ± ± ± ±	$\frac{2}{\sigma/dpd9}$ 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78	± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1	100.45 128.45 124.69 85.10 34.16 41.97 25.02 23.82 5.14	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd9}{21.15}$ 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75	± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6	170.62 154.44 149.58 92.32 99.89 74.69 45.89 34.68 12.68 6.04	d ² ± ± ± ± ± ± ± ± ± ±	2 \sigma/\dpds 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43	± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4	100.45 128.45 124.69 85.10 34.16 41.97 25.02 23.82 5.14 3.26	d ² ± ± ± ± ± ± ± ± ±	2 \sigma/\dpd9 \frac{2\tau/dpd9}{21.15} \frac{17.20}{16.22} \frac{11.15}{7.04} \frac{7.72}{5.05} \frac{4.54}{1.75} \frac{1.17}{1.17}	± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3	170.62 154.44 149.58 92.32 99.89 74.69 45.89 34.68 12.68 6.04 1.52	d ² ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \text{dpdg}\) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42	± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1	100.45 128.45 124.69 85.10 34.16 41.97 25.02 23.82 5.14 3.26 0.46	d ² ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17	± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2	170.62 154.44 149.58 92.32 99.89 74.69 45.89 34.68 12.68 6.04	d ² ± ± ± ± ± ± ± ± ± ± =	2 \(\frac{1}{24.48}\) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42	± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4 80.9	100.45 128.45 124.69 85.10 34.16 41.97 25.02 23.82 5.14 3.26	d ² ± ± ± ± ± ± ± ± ± = < 12	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24	* * * * * * * * * * * *	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6	170.62 154.44 149.58 92.32 99.89 74.69 45.89 34.68 12.68 6.04 1.52	d ² ± ± ± ± ± ± ± ± ± ± =	2 \(\sigma / \text{dpdg}\) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42	± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4	100.45 128.45 124.69 85.10 34.16 41.97 25.02 23.82 5.14 3.26 0.46	d ² ± ± ± ± ± ± ± ± ± = < 12	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17	* * * * * * * * * * * *	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ)	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline 90 < \theta \\ \hline \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \dpd\) \(\frac{2}{4.48}\) \(18.06\) \(17.52\) \(11.34\) \(12.03\) \(10.32\) \(6.89\) \(5.25\) \(2.78\) \(1.43\) \(0.52\) \(\frac{2}{6}\sigma / \dpd\) \(\frac{2}{6}\sigma / \dpd\) \(\frac{2}{6}\sigma / \dpd\) \(18.43\)	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750 1.026 $\langle p_{\rm T} \rangle$ 0.146	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4 80.9	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ \hline \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24 25 27/dpd9	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline 90 < \theta \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) dpds 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42 05 2 \(\sigma/\) dpds 22 18.43 13.35	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750 1.026 $\langle p_{\rm T} \rangle$ 0.146 0.179	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4 80.9 $\langle \theta \rangle$ 114.7 115.0	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24 25 27/dpd9 14.31 9.78	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.146 \\ 0.179 \\ 0.219 \\ 0.265 \\ 0.331 \\ 0.390 \\ 0.454 \\ 0.549 \\ 0.649 \\ 0.820 \\ 1.038 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.178 \\ 0.220 \\ \end{array} $	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 24.48 \\ 18.06 \\ 17.52 \\ 11.34 \\ 12.03 \\ 10.32 \\ 6.89 \\ 5.25 \\ 2.78 \\ 1.43 \\ 0.42 \\ \hline \\ 05 \\ \hline \\ 05 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}9 \\ 18.43 \\ 13.35 \\ 13.35 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31	$ \begin{array}{c} 0.147 \\ 0.178 \\ 0.217 \\ 0.264 \\ 0.333 \\ 0.394 \\ 0.458 \\ 0.556 \\ 0.655 \\ 0.750 \\ 1.026 \\ \hline \\ \hline \\ p_{\rm T}\rangle \\ 0.146 \\ 0.179 \\ 0.221 \\ \end{array} $	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4 80.9 (θ) 114.7 115.0 113.1	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 21.15 \\ 17.20 \\ 16.22 \\ 11.15 \\ 7.04 \\ 7.72 \\ 5.05 \\ 4.54 \\ 1.75 \\ 1.17 \\ 0.24 \\ \hline \\ 25 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline \\ 14.31 \\ 9.78 \\ 9.54 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1 97.2	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ \end{array}$	d4 ± ± ± ± ± ± ± d4 ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 24.48 \\ 18.06 \\ 17.52 \\ 11.34 \\ 12.03 \\ 10.32 \\ 6.89 \\ 5.25 \\ 2.78 \\ 1.43 \\ 0.42 \\ \hline \\ 05 \\ \hline \\ 05 \\ \hline \\ 3.35 \\ 9.98 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31 5.02 4.11 3.30 2.57	$ \begin{array}{c} 0.147 \\ 0.178 \\ 0.217 \\ 0.264 \\ 0.333 \\ 0.394 \\ 0.458 \\ 0.556 \\ 0.655 \\ 0.750 \\ 1.026 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.146 \\ 0.179 \\ 0.221 \\ 0.265 \\ \end{array} $	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.1 81.4 80.9 (θ) 114.7 115.0 113.1 112.8	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 21.15 \\ 17.20 \\ 16.22 \\ 11.15 \\ 7.04 \\ 7.72 \\ 5.05 \\ 4.54 \\ 1.75 \\ 0.24 \\ \hline \\ 25 \\ \hline \\ 25 \\ \hline \\ 25 \\ \hline \\ 37/\mathrm{d}p\mathrm{d}9 \\ \hline \\ 14.31 \\ 9.78 \\ 9.54 \\ 6.11 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269 0.330	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1 97.2 96.6	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline \\ 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ 29.88 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 24.48 \\ 18.06 \\ 17.52 \\ 11.34 \\ 12.03 \\ 10.32 \\ 6.89 \\ 5.25 \\ 2.78 \\ 1.43 \\ 0.42 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.5 \\ \hline 0.6 \\ \hline $	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.73 6.25 3.23 3.48 2.80 2.06 2.16 0.76 0.31 5.02 4.11 3.30 2.57 1.45	$ \begin{array}{c} 0.147 \\ 0.178 \\ 0.217 \\ 0.264 \\ 0.333 \\ 0.394 \\ 0.458 \\ 0.556 \\ 0.655 \\ 0.750 \\ 1.026 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.221 \\ 0.265 \\ 0.326 \\ \end{array} $	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.4 80.9 (θ) 114.7 115.0 113.1 112.8 115.2	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ 12.52 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 21.15 \\ 17.20 \\ 16.22 \\ 11.15 \\ 7.04 \\ 7.72 \\ 5.05 \\ 4.54 \\ 1.75 \\ 0.24 \\ \hline \\ 25 \\ \sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 14.31 \\ 9.78 \\ 9.54 \\ 6.11 \\ 3.57 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57 0.79
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269 0.330 0.380	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1 97.2 96.6 97.3	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline \\ 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ 29.88 \\ 22.64 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \dpds \) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42 05 2 \(\sigma / \dpds \) 18.43 13.35 9.98 6.66 5.61	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31 5.02 4.11 3.30 2.57 1.45 1.39	$ \begin{array}{c} 0.147 \\ 0.178 \\ 0.217 \\ 0.264 \\ 0.333 \\ 0.394 \\ 0.458 \\ 0.556 \\ 0.655 \\ 0.750 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.221 \\ 0.265 \\ 0.326 \\ 0.388 \\ \end{array} $	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.4 80.9 (\(\theta\)\) 114.7 115.0 113.1 112.8 115.2 112.0	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ 12.52 \\ 11.16 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 0.24 25 6 /dpd9 14.31 9.78 9.54 6.11 3.57 3.43	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57 0.79
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269 0.330 0.380 0.458	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1 97.2 96.6 97.3 96.0	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline \\ 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ 29.88 \\ 22.64 \\ 15.48 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 24.48 \\ 18.06 \\ 17.52 \\ 11.34 \\ 12.03 \\ 10.32 \\ 6.89 \\ 5.25 \\ 2.78 \\ 1.43 \\ 0.42 \\ \hline \\ 0.5 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 18.43 \\ 13.35 \\ 9.98 \\ 6.66 \\ 5.61 \\ 3.95 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31 5.02 4.11 3.30 2.57 1.45 1.39 1.28	$ \begin{array}{c} 0.147 \\ 0.178 \\ 0.217 \\ 0.264 \\ 0.333 \\ 0.394 \\ 0.458 \\ 0.556 \\ 0.655 \\ 0.750 \\ 1.026 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.146 \\ 0.179 \\ 0.221 \\ 0.265 \\ 0.326 \\ 0.388 \\ 0.464 \\ \end{array} $	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.4 80.9 (θ) 114.7 115.0 113.1 112.8 115.2 112.0 111.3	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ 12.52 \\ 11.16 \\ 4.65 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24 25 3 /dpd9 14.31 9.78 9.54 6.11 3.57 3.43 1.82	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57 0.79 0.97
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269 0.330 0.380 0.458 0.542	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1 97.2 96.6 97.3 96.0 96.8	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 6.04 \\ 1.52 \\ \hline \\ 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ 29.88 \\ 22.64 \\ 15.48 \\ 9.95 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \dp \text{dp} \text{ds} \) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42 05 2 \(\sigma / \dp \text{ds} \) 18.43 13.35 9.98 6.66 5.61 3.95 2.79	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.73 6.25 3.23 3.48 2.80 2.06 2.16 0.76 0.31 5.02 4.11 3.30 2.57 1.45 1.39 1.28 1.12	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750 1.026 $\langle p_{\rm T} \rangle$ 0.146 0.179 0.221 0.265 0.326 0.388 0.464 0.541	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.4 80.9 (θ) 114.7 115.0 113.1 112.8 115.2 112.0 111.3 118.0	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ 12.52 \\ 11.16 \\ 4.65 \\ 2.65 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24 25 27/dpd9 14.31 9.78 9.54 6.11 3.57 3.43 1.82 1.27	# # # # # # # # # # # # # # # # # # #	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57 0.79 0.97 0.54 0.40
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269 0.330 0.380 0.458 0.542 0.656	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 98.0 96.2 96.1 97.2 96.6 97.3 96.0 96.8 95.9	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 12.68 \\ 6.04 \\ 1.52 \\ \hline \\ 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ 29.88 \\ 22.64 \\ 15.48 \\ 9.95 \\ 5.12 \\ \hline \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \text{dpds}\) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42 05 2 \(\sigma / \text{dpds}\) 18.43 13.35 13.35 13.35 13.35 9.98 6.66 5.61 3.95 2.79 1.92	1 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.73 6.25 3.23 3.48 2.80 2.06 2.16 1.10 0.76 0.31 5.02 4.11 3.30 2.57 1.45 1.39 1.28 1.12 0.78	$ \begin{array}{c} 0.147 \\ 0.178 \\ 0.217 \\ 0.264 \\ 0.333 \\ 0.394 \\ 0.458 \\ 0.556 \\ 0.655 \\ 0.750 \\ 1.026 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.146 \\ 0.179 \\ 0.221 \\ 0.265 \\ 0.326 \\ 0.388 \\ 0.464 \\ \end{array} $	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.4 80.9 (θ) 114.7 115.0 113.1 112.8 115.2 112.0 111.3	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ 12.52 \\ 11.16 \\ 4.65 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24 25 3 /dpd9 14.31 9.78 9.54 6.11 3.57 3.43 1.82	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57 0.79 0.97
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.146 0.179 0.219 0.265 0.331 0.390 0.454 0.549 0.649 0.820 1.038 $\langle p_{\rm T} \rangle$ 0.148 0.178 0.220 0.269 0.330 0.380 0.458 0.542	66.9 67.0 67.1 67.3 67.0 67.6 67.3 66.5 65.3 66.6 64.2 (θ) 98.0 96.2 96.1 97.2 96.6 97.3 96.0 96.8	$\begin{array}{c} 170.62 \\ 154.44 \\ 149.58 \\ 92.32 \\ 99.89 \\ 74.69 \\ 45.89 \\ 34.68 \\ 6.04 \\ 1.52 \\ \hline \\ 90 < \theta \\ \hline \\ 79.76 \\ 86.18 \\ 87.66 \\ 68.08 \\ 29.88 \\ 22.64 \\ 15.48 \\ 9.95 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma / \text{dpds}\) 24.48 18.06 17.52 11.34 12.03 10.32 6.89 5.25 2.78 1.43 0.42 05 2 \(\sigma / \text{dpds}\) 18.43 13.35 9.98 6.66 5.61 3.95 2.79	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.73 6.25 3.23 3.48 2.80 2.06 2.16 0.76 0.31 5.02 4.11 3.30 2.57 1.45 1.39 1.28 1.12	0.147 0.178 0.217 0.264 0.333 0.394 0.458 0.556 0.655 0.750 1.026 $\langle p_{\rm T} \rangle$ 0.146 0.179 0.221 0.265 0.326 0.388 0.464 0.541	83.2 82.6 82.2 82.5 80.7 80.1 82.4 83.4 81.4 80.9 (θ) 114.7 115.0 113.1 112.8 115.2 112.0 111.3 118.0	$\begin{array}{c} 100.45 \\ 128.45 \\ 124.69 \\ 85.10 \\ 34.16 \\ 41.97 \\ 25.02 \\ 23.82 \\ 5.14 \\ 3.26 \\ 0.46 \\ \hline \\ 105 < \theta \\ \hline \\ 87.75 \\ 64.04 \\ 56.80 \\ 35.19 \\ 12.52 \\ 11.16 \\ 4.65 \\ 2.65 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	27/dpd9 21.15 17.20 16.22 11.15 7.04 7.72 5.05 4.54 1.75 1.17 0.24 25 27/dpd9 14.31 9.78 9.54 6.11 3.57 3.43 1.82 1.27	# # # # # # # # # # # # # # # # # # #	6.17 4.98 3.26 1.30 1.89 1.43 1.85 0.56 0.49 0.11 4.70 2.75 2.18 1.57 0.79 0.97 0.54 0.40

Table A.33: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^+ + Cu $\to \pi^-$ + X interactions with +12.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta$							$30 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.114	24.6	291.72	±	39.90	±	22.44	0.116	35.4	242.70	±	35.82	±	18.74
0.13-0.16	0.146	24.7	320.73	\pm	38.41	\pm	19.54	0.145	34.0	239.09	\pm	32.01	\pm	14.40
0.16-0.20	0.179	24.8	387.54	\pm	35.06	\pm	19.47	0.179	35.2	242.33	\pm	28.06	\pm	12.50
0.20-0.24	0.219	24.7	366.48	\pm	33.55	\pm	15.65	0.217	34.9	257.32	\pm	28.35	\pm	11.06
0.24-0.30	0.269	24.9	350.51	\pm	26.43	\pm	12.02	0.268	34.8	247.73	\pm	22.34	\pm	8.61
0.30-0.36	0.329	24.6	276.63	\pm	23.37	\pm	8.23	0.330	35.0	171.51	\pm	18.51	\pm	5.15
0.36-0.42	0.388	24.7	228.34	\pm	21.05	\pm	7.03	0.387	34.4	132.46	\pm	15.88	\pm	4.10
0.42-0.50	0.459	24.7	146.77	\pm	14.81	\pm	5.52	0.461	34.5	110.53	\pm	12.70	\pm	4.10
0.50-0.60	0.545	24.7	87.85	\pm	10.18	\pm	4.55	0.536	34.5	59.19	\pm	8.31	\pm	3.01
0.60-0.72	0.655	24.6	44.57	\pm	6.26	\pm	3.28	0.650	34.5	52.80	\pm	6.83	\pm	3.84
0.72-0.90								0.778	35.6	19.16	\pm	3.21	\pm	2.04
3172 3173	<u> </u>		$40 < \theta$) / 5	<u></u>			1		$50 < \theta$			_	
m	/m_\	$\langle \theta \rangle$	40 < 0		$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$			/m_\	$\langle \theta \rangle$	30 < 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	<u> </u>	
0.10-0.13	(p _T)	44.4	190.29	±	32.83		14.95	$\langle p_{\mathrm{T}} \rangle$	(0)		u	o/apas		
0.10-0.13	0.113	44.4	201.31		30.50	±	12.32	0.146	55.5	139.53	1	24.89	\pm	8.80
	1			±		±		1			±			
0.16-0.20	0.181	45.3	230.44	± _	26.94	± _	11.87	0.179	54.0	181.36	± _	23.51	土	9.32
0.20-0.24 0.24-0.30	0.220	45.4 44.7	186.79	±	23.70	±	8.22 5.54	0.218	54.3	136.81 147.15	±	20.36 17.45	±	5.98 5.29
	0.268		156.78	±	17.98 16.51	±		0.266	54.8		±		±	
0.30-0.36	0.329	44.5	134.79	±		±	4.12	0.328	54.4	109.51	±	14.99	±	3.49
0.36-0.42	0.386	45.1	94.87	±	13.40	±	3.08	0.396	54.3	79.25	±	12.55	±	2.73
0.42-0.50	0.460	45.3	102.95	±	12.31	±	4.07	0.463	53.9	39.62	±	7.63	±	1.67
0.50-0.60	0.542	44.5	65.17	±	8.42	±	3.61	0.547	54.8	22.54	±	4.92	±	1.35
0.60-0.72	0.650	44.4	40.18	±	5.93	±	3.15	0.657	54.7	20.43	±	4.47	±	1.64
0.72-0.90	0.813	45.2	15.01	\pm	3.00	\pm	1.64	0.800	53.3	8.90	±	2.16	±	1.05
0.90–1.25								1.027	55.6	1.95	±	0.69	±	0.35
	/m \	$\langle \theta \rangle$	$60 < \theta$		$\frac{75}{2\sigma/\mathrm{d}p\mathrm{d}\Omega}$			/m \	$\langle \theta \rangle$	$75 < \theta$		$\frac{0}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	<u> </u>	
0.13-0.16	$p_{\rm T}$ 0.146	67.7	111.32	\pm	18.81	±	6.77	$\langle p_{\mathrm{T}} \rangle$ 0.147	83.0	152.61	\pm	33.20	±	26.70
0.15-0.16	0.146	67.4	148.05	±	17.68	土	7.05	0.147		128.32		33.20 16.47	土	5.96
	1							1	82.8		±			4.02
0.20-0.24	0.223	67.5	146.72	±	17.52	±	5.96	0.218	82.4	103.73 68.56	±	14.32	±	
0.24-0.30	0.268	67.1	102.39	±	11.99	±	3.70 2.24	0.270 0.329	82.9 82.2	36.96	±	9.98	±	2.57 1.70
0.30-0.36	0.332	67.4	69.36	±	9.75	±		1			±	7.43	±	
0.36-0.42	0.386	66.1	61.57	±	9.33	±	2.47	0.390	81.0	36.67	±	7.20	±	1.79
0.42-0.50	0.457	66.7	35.91 28.63	± ±	5.94	±	1.73	0.459	83.3	26.16	±	5.35 3.42	±	1.68
0.50-0.60 0.60-0.72	0.543 0.647	67.5 66.7	17.60	± ±	4.71 3.27	土	1.88 1.59	0.538 0.634	80.9 81.0	14.50 5.15	± ±	1.72	± ±	1.22 0.61
0.60-0.72	0.808	67.9	3.15	± ±	1.05			0.851	85.8	1.90	土	0.85	土	0.01
0.72-0.90 0.90-1.25	1.023	66.6	0.74	土	0.37	土	0.41 0.14	1.016	79.3	0.63	土	0.85	土	0.30
0.90-1.23	1.023	00.0	$\frac{0.74}{90 < \theta}$				0.14	1.010	19.3					0.13
nee	/nm\	$\langle \theta \rangle$	$90 < \theta$		$\frac{05}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$)		/2000	$\langle \theta \rangle$	$105 < \theta$		$\sigma/\mathrm{d}p\mathrm{d}\Omega$)	
0.13-0.16	$\langle p_{\rm T} \rangle$ 0.148	96.2	130.21	\pm	33.97	±	12.56	$p_{\rm T}$ 0.143	115.7	79.61	\pm	13.01	±	4.67
0.15-0.16	0.148	90.2	121.29	土	15.64	土	5.92	0.143	113.7	77.89	土	11.00	土	3.10
0.20-0.24	0.220	97.3	60.07	±	11.31	±	2.37	0.216	114.1	40.23	土	7.90	±	1.68
0.24-0.30	0.269	97.2	55.09	±	8.96	±	2.17	0.210	112.8	21.73	±	4.87	±	1.11
0.30-0.36	0.330	97.7	34.12	±	6.99	±	1.71	0.325	111.2	20.47	土	4.71	±	1.47
	0.387	97.0	37.25	±	7.20	±	2.46	0.325	114.9	7.80	\pm	2.76	士	0.75
1 (130-04)		71.0	21.43				1.30	1		8.85	土	2.55		
0.36-0.42	1	95.0	14 71	+	3 03								-	1 10 1
0.42-0.50	0.456	95.9 96.9	14.71 5.62	± +	3.93	± +		0.453	112.1				± +	1.10
0.42-0.50 0.50-0.60	0.456 0.553	96.9	5.62	\pm	1.99	\pm	0.68	0.453	115.5	1.21	±	0.86	± ±	0.19
0.42-0.50	0.456							1						

Table A.34: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^- + Cu \to p + X interactions with -12.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$) < 3	30					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.220	25.0	347.91	±	10.51	±	18.84		, ,					
0.24-0.30	0.270	25.2	322.20	\pm	8.07	\pm	15.63	0.271	35.1	376.12	\pm	8.63	\pm	16.67
0.30-0.36	0.329	25.3	263.39	\pm	7.36	\pm	12.14	0.329	35.2	332.06	\pm	8.00	\pm	12.70
0.36-0.42	0.389	25.3	238.35	\pm	7.12	\pm	10.60	0.389	35.1	269.70	\pm	7.36	\pm	10.06
0.42-0.50	0.459	25.2	184.34	\pm	5.39	\pm	8.44	0.458	35.1	199.97	\pm	5.69	\pm	8.67
0.50-0.60	0.548	25.2	136.24	\pm	4.04	\pm	6.42	0.548	35.1	153.26	\pm	4.47	\pm	7.44
0.60-0.72	0.655	25.0	98.10	\pm	3.07	\pm	4.94	0.654	35.1	103.93	\pm	3.37	\pm	6.25
0.72-0.90								0.799	35.0	56.41	\pm	2.04	\pm	4.55
			$40 < \theta$	0 < 5	0					$50 < \theta$	< 60)		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.329	45.1	344.72	±	7.96	\pm	11.08							
0.36-0.42	0.388	45.1	283.57	\pm	7.28	\pm	8.30	0.389	55.0	297.66	\pm	7.17	\pm	9.30
0.42-0.50	0.458	45.1	230.16	\pm	5.93	\pm	7.68	0.458	55.1	232.07	\pm	5.67	\pm	6.69
0.50-0.60	0.546	45.1	159.98	\pm	4.57	\pm	7.53	0.546	55.1	167.24	\pm	4.53	\pm	6.63
0.60-0.72	0.654	45.1	103.37	\pm	3.49	\pm	6.46	0.654	55.0	106.63	\pm	3.51	\pm	6.59
0.72-0.90	0.799	44.9	55.43	\pm	2.10	\pm	4.69	0.797	55.1	55.59	\pm	2.14	\pm	4.65
0.90–1.25	1.038	45.0	17.88	\pm	0.83	\pm	2.21	1.033	54.9	15.30	\pm	0.80	\pm	2.04
			60 < 6		-					$75 < \theta$	< 90)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.549	67.5	159.72	±	3.38	±	6.32							
0.60-0.72	0.659	67.5	98.40	\pm	2.62	\pm	5.88	0.658	81.9	69.92	\pm	2.05	\pm	5.01
0.72-0.90	0.803	67.1	45.29	\pm	1.57	\pm	4.50	0.801	81.4	28.96	\pm	1.22	\pm	3.20
0.90-1.25	1.042	67.2	12.71	土	0.62	\pm	2.08	1.034	81.8	7.05	\pm	0.47	\pm	1.27
			$90 < \theta$	-						$105 < \theta$	-	-		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.460	113.5	86.85	±	2.33	±	5.09
0.50-0.60								0.547	112.9	43.20	\pm	1.53	\pm	4.02
0.60-0.72	0.655	97.1	47.69	\pm	1.69	\pm	4.23	0.656	112.8	18.59	\pm	0.99	\pm	2.65
0.72-0.90	0.800	96.7	17.27	\pm	0.96	\pm	2.20	0.796	112.4	5.60	\pm	0.49	\pm	1.23
0.90-1.25	1.030	96.8	3.02	\pm	0.31	\pm	0.59							

Table A.35: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^- + Cu $\to \pi^+$ + X interactions with -12.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	0 < 3	0					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.116	24.9	258.70	±	11.53	±	19.26	0.116	34.7	193.72	±	9.41	±	14.01
0.13-0.16	0.146	24.9	299.79	\pm	11.24	\pm	17.40	0.146	35.0	222.68	\pm	9.54	\pm	12.66
0.16-0.20	0.180	24.7	304.51	\pm	9.43	\pm	15.12	0.180	34.9	259.04	\pm	8.69	\pm	12.42
0.20-0.24	0.220	24.9	339.23	\pm	9.83	\pm	14.34	0.220	34.7	261.08	\pm	8.64	\pm	10.69
0.24-0.30	0.270	24.7	302.20	\pm	7.48	\pm	10.56	0.270	34.7	250.04	\pm	6.84	\pm	8.52
0.30-0.36	0.329	24.7	267.34	\pm	7.02	\pm	8.02	0.329	34.8	226.47	\pm	6.59	\pm	6.62
0.36-0.42	0.389	24.6	215.32	\pm	6.19	\pm	6.30	0.389	34.9	162.06	\pm	5.45	\pm	4.54
0.42-0.50	0.457	24.7	169.29	\pm	4.69	\pm	5.98	0.458	34.8	127.21	\pm	4.13	\pm	4.12
0.50-0.60	0.545	24.8	114.67	\pm	3.34	\pm	5.85	0.548	35.0	84.68	\pm	2.92	\pm	3.90
0.60-0.72	0.655	24.8	72.75	\pm	2.33	\pm	5.59	0.654	34.6	48.38	\pm	1.90	\pm	3.36
0.72-0.90	0.055	21.0	,2.,5	_	2.00	_	5.57	0.799	34.7	22.25	\pm	0.93	\pm	2.52
0.72 0.70			$40 < \theta$) / [0			0.777	31.7	$50 < \theta$			_	
	/	$\langle \theta \rangle$	40 < 6	$\frac{7}{12}$	$\frac{0}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$			/ \	$\langle \theta \rangle$	$50 < \theta$	< 60	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}}$		
p_{T}	$\langle p_{\rm T} \rangle$		167.00				10.61	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		α-	σ/apa	7.7	
0.10-0.13	0.117	45.1	167.98	±	9.43	±	12.61	0.146	540	15450		7.00		0.26
0.13-0.16	0.145	44.8	179.83	±	8.51	±	10.36	0.146	54.8	154.50	±	7.92	±	9.26
0.16-0.20	0.180	45.1	188.69	±	7.40	±	9.12	0.180	54.9	168.05	±	6.95	±	8.05
0.20-0.24	0.220	44.9	201.33	±	7.64	±	8.29	0.219	55.0	150.13	±	6.50	±	6.04
0.24-0.30	0.269	44.8	186.48	±	6.00	±	6.40	0.269	54.9	132.94	±	5.02	±	4.39
0.30-0.36	0.329	44.7	149.35	±	5.32	±	4.34	0.329	55.1	115.11	±	4.69	±	3.32
0.36-0.42	0.389	44.7	123.41	±	4.78	±	3.52	0.389	54.8	89.36	±	4.09	±	2.66
0.42-0.50	0.457	44.8	95.12	±	3.58	\pm	3.13	0.456	54.8	68.33	\pm	3.06	±	2.45
0.50-0.60	0.548	44.6	58.22	\pm	2.41	\pm	2.62	0.545	54.9	41.03	\pm	2.08	\pm	2.00
0.60-0.72	0.653	44.6	34.31	\pm	1.62	\pm	2.27	0.656	54.2	24.09	\pm	1.41	\pm	1.67
0.72-0.90	0.794	44.5	16.16	\pm	0.85	\pm	1.62	0.801	54.5	10.28	\pm	0.73	\pm	1.03
0.90–1.25								1.027	54.5	2.22	±	0.18	±	0.40
			$60 < \theta$							$75 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$		
0.13-0.16	0.146	66.9	143.97	\pm	7.03	\pm	9.14	0.147	82.3	85.94	\pm	5.94	\pm	5.27
0.16-0.20	0.180	67.0	131.69	\pm	4.91	\pm	6.35	0.181	82.0	99.26	\pm	4.46	\pm	4.56
0.20-0.24	0.220	66.9	126.45	\pm	4.89	\pm	4.98	0.219	82.2	85.33	\pm	3.96	\pm	3.14
0.24-0.30	0.269	66.9	97.88	\pm	3.56	\pm	3.25	0.269	82.0	69.52	\pm	3.06	\pm	2.44
0.30-0.36	0.330	67.0	79.48	\pm	3.22	\pm	2.42	0.329	81.6	52.47	\pm	266	土	1.89
0.36-0.42	0.000	07.0	l								\pm	2.66	_	
	0.391	66.7	55.41	\pm	2.68	\pm	1.90	0.329	81.8	38.25	±	2.27	\pm	1.65
0.42-0.50	0.391 0.460	66.7 66.9	55.41 41.44	$_{\pm}$	2.68 1.95	\pm	1.90 1.73	0.389 0.457	81.8 82.0	38.25 23.05	$_{\pm}$	2.27 1.48	$_{\pm}$	1.21
0.42-0.50 0.50-0.60	0.391 0.460 0.550	66.7 66.9 67.0	55.41 41.44 30.30	± ± ±	2.68 1.95 1.46	$_{\pm}$	1.90 1.73 1.78	0.389 0.457 0.545	81.8 82.0 81.6	38.25 23.05 15.71	± ± ±	2.27 1.48 1.06	± ± ±	1.21 1.15
0.42-0.50	0.391 0.460 0.550 0.660	66.7 66.9	55.41 41.44 30.30 13.42	± ± ±	2.68 1.95 1.46 0.86	± ± ±	1.90 1.73 1.78 1.11	0.389 0.457	81.8 82.0	38.25 23.05 15.71 8.68	± ± ±	2.27 1.48 1.06 0.71	± ± ±	1.21 1.15 0.87
0.42-0.50 0.50-0.60	0.391 0.460 0.550	66.7 66.9 67.0	55.41 41.44 30.30	± ± ±	2.68 1.95 1.46	$_{\pm}$	1.90 1.73 1.78	0.389 0.457 0.545	81.8 82.0 81.6	38.25 23.05 15.71	± ± ± ±	2.27 1.48 1.06	± ± ±	1.21 1.15
0.42-0.50 0.50-0.60 0.60-0.72	0.391 0.460 0.550 0.660	66.7 66.9 67.0 66.4	55.41 41.44 30.30 13.42	± ± ±	2.68 1.95 1.46 0.86	± ± ±	1.90 1.73 1.78 1.11	0.389 0.457 0.545 0.658	81.8 82.0 81.6 80.9	38.25 23.05 15.71 8.68 2.21 0.58	± ± ± ± ±	2.27 1.48 1.06 0.71 0.27 0.08	± ± ±	1.21 1.15 0.87
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.391 0.460 0.550 0.660 0.798	66.7 66.9 67.0 66.4 66.4 65.9	55.41 41.44 30.30 13.42 5.37	± ± ± ± ±	2.68 1.95 1.46 0.86 0.42 0.11	± ± ±	1.90 1.73 1.78 1.11 0.63	0.389 0.457 0.545 0.658 0.808	81.8 82.0 81.6 80.9 81.3	38.25 23.05 15.71 8.68 2.21	± ± ± ± ±	2.27 1.48 1.06 0.71 0.27 0.08	± ± ± ±	1.21 1.15 0.87 0.31
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.391 0.460 0.550 0.660 0.798	66.7 66.9 67.0 66.4 66.4	55.41 41.44 30.30 13.42 5.37 1.24	± ± ± ± ± ±	2.68 1.95 1.46 0.86 0.42 0.11	± ± ± ±	1.90 1.73 1.78 1.11 0.63	0.389 0.457 0.545 0.658 0.808	81.8 82.0 81.6 80.9 81.3	38.25 23.05 15.71 8.68 2.21 0.58	± ± ± ± ± ±	2.27 1.48 1.06 0.71 0.27 0.08	± ± ± ± ±	1.21 1.15 0.87 0.31
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.391 0.460 0.550 0.660 0.798 1.029	66.7 66.9 67.0 66.4 66.4 65.9	55.41 41.44 30.30 13.42 5.37 1.24	± ± ± ± ± ±	2.68 1.95 1.46 0.86 0.42 0.11	± ± ± ±	1.90 1.73 1.78 1.11 0.63	0.389 0.457 0.545 0.658 0.808 1.035	81.8 82.0 81.6 80.9 81.3 80.8	38.25 23.05 15.71 8.68 2.21 0.58	± ± ± ± ± ±	2.27 1.48 1.06 0.71 0.27 0.08	± ± ± ± ±	1.21 1.15 0.87 0.31
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.391 0.460 0.550 0.660 0.798 1.029	66.7 66.9 67.0 66.4 66.4 65.9	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline 90 < \theta \\ \end{array}$	± ± ± ± ± = (10)	2.68 1.95 1.46 0.86 0.42 0.11 05 $\sigma/\mathrm{d}p\mathrm{d}\Omega$	± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24	0.389 0.457 0.545 0.658 0.808 1.035	81.8 82.0 81.6 80.9 81.3 80.8	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ 105 < \theta \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 12 \\ \hline d^{2} \end{array} $	2.27 1.48 1.06 0.71 0.27 0.08 25 σ/dpd	± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16	0.391 0.460 0.550 0.660 0.798 1.029 $\langle p_{\rm T} \rangle$ 0.148	66.7 66.9 67.0 66.4 66.4 65.9 (θ)	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline \pm \\ 4^2 \end{array} $	2.68 1.95 1.46 0.86 0.42 0.11 05 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.53	± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41	0.389 0.457 0.545 0.658 0.808 1.035 $\langle p_{\rm T} \rangle$ 0.145	81.8 82.0 81.6 80.9 81.3 80.8 (θ)	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline 105 < \theta \\ \hline \\ 78.10 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \hline \pm \\ \hline < 12 \\ \hline d^2 \\ \pm \end{array} $	2.27 1.48 1.06 0.71 0.27 0.08 $color blue color blue$	± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20	0.391 0.460 0.550 0.660 0.798 1.029 $\langle p_{\rm T} \rangle$ 0.148 0.181	66.7 66.9 67.0 66.4 66.4 65.9 (θ) 97.8 97.2	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \hline \pm \\ < 10 \\ \hline d^2 \\ \pm \\ \pm \\ \end{array} $	2.68 1.95 1.46 0.86 0.42 0.11 05 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.53 4.17	± ± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68	0.389 0.457 0.545 0.658 0.808 1.035 $\langle p_{\rm T} \rangle$ 0.145 0.178	81.8 82.0 81.6 80.9 81.3 80.8 (θ) 114.3 113.9	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ 105 < \theta \\ \hline \\ \hline \\ 78.10 \\ 59.15 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline < 12 \\ \hline d^{2} \\ \pm \\ \pm \end{array} $	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \sigma/\mathrm{d}p\mathrm{d} \\ 4.15 \\ 2.83 \end{array}$	± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 <i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.391 \\ 0.460 \\ 0.550 \\ 0.660 \\ 0.798 \\ 1.029 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.148 \\ 0.181 \\ 0.219 \\ \end{array} $	66.7 66.9 67.0 66.4 66.4 65.9 97.8 97.2 96.6	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ \end{array}$	± ± ± ± ± d2 d2 ± ± ± ±	2.68 1.95 1.46 0.86 0.42 0.11 05 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.53 4.17 3.65	2 ± ± ± ± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41	0.389 0.457 0.545 0.658 0.808 1.035 $\langle p_{\rm T} \rangle$ 0.145 0.178 0.219	81.8 82.0 81.6 80.9 81.3 80.8 (θ) 114.3 113.9 113.7	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ 105 < \theta \\ \hline \\ 78.10 \\ 59.15 \\ 49.54 \\ \end{array}$	± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \\ \frac{\sigma}{dpd} \\ 4.15 \\ 2.83 \\ 2.72 \\ \end{array}$	± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.67
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	$ \begin{array}{c} 0.391 \\ 0.460 \\ 0.550 \\ 0.660 \\ 0.798 \\ 1.029 \\ \hline \\ \hline \\ 0.148 \\ 0.181 \\ 0.219 \\ 0.269 \\ \end{array} $	66.7 66.9 67.0 66.4 66.4 65.9 (θ) 97.8 97.2 96.6 97.0	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ 48.84 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} \pm \\ \text{d}^2 \\ \pm \\ \pm \\ \pm \\ \end{array}$	2.68 1.95 1.46 0.86 0.42 0.11 05 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.53 4.17 3.65 2.56 2.20	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41 1.73	0.389 0.457 0.545 0.658 0.808 1.035 $\langle p_{\rm T} \rangle$ 0.145 0.178 0.219 0.267	81.8 82.0 81.6 80.9 81.3 80.8 (θ) 114.3 113.9 113.7 113.5	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \hline 105 < \theta \\ \hline \hline 78.10 \\ 59.15 \\ 49.54 \\ 25.59 \\ \end{array}$	$ \begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \\ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}} \\ 4.15 \\ 2.83 \\ 2.72 \\ 1.60 \\ \end{array}$	± ± ± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.67 1.06
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.391 \\ 0.460 \\ 0.550 \\ 0.660 \\ 0.798 \\ 1.029 \\ \hline \\ \hline \\ 0.148 \\ 0.181 \\ 0.219 \\ 0.269 \\ 0.330 \\ \end{array} $	66.7 66.9 67.0 66.4 66.4 65.9 97.8 97.2 96.6 97.0 96.8	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ 48.84 \\ 35.47 \\ \end{array}$	± ± ± ± ± d ² d ² ± ± ± ± ± ± ±	2.68 1.95 1.46 0.86 0.42 0.11 05 $\sigma/\mathrm{d}p\mathrm{d}\Omega$ 5.53 4.17 3.65 2.56	2 ± ± ± ± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41 1.73 1.64	$ \begin{array}{c} 0.389 \\ 0.457 \\ 0.545 \\ 0.658 \\ 0.808 \\ 1.035 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.330 \\ \end{array} $	81.8 82.0 81.6 80.9 81.3 80.8 $\langle \theta \rangle$ 114.3 113.9 113.7 113.5 113.9	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \hline 105 < \theta \\ \hline \hline 78.10 \\ 59.15 \\ 49.54 \\ 25.59 \\ 18.30 \\ \end{array}$	± ± ± ± ± d ² d ² ± ± ± ± ± ±	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \\ \frac{\sigma}{dpd} \\ 4.15 \\ 2.83 \\ 2.72 \\ 1.60 \\ 1.35 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.67 1.06 1.08
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	$ \begin{array}{c} 0.391 \\ 0.460 \\ 0.550 \\ 0.660 \\ 0.798 \\ 1.029 \\ \hline \\ \hline \\ 0.148 \\ 0.181 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.390 \\ 0.460 \\ \end{array} $	66.7 66.9 67.0 66.4 66.4 65.9 97.8 97.2 96.6 97.0 96.8 97.0 97.0	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ 48.84 \\ 35.47 \\ 19.56 \\ 14.39 \\ \end{array}$	$ \begin{array}{c} \pm \\	2.68 1.95 1.46 0.86 0.42 0.11 05 \(\sigma/\dpdS\) 5.53 4.17 3.65 2.56 2.20 1.59 1.15	2 ± ± ± ± ± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41 1.73 1.64 1.10	$\begin{array}{c} 0.389 \\ 0.457 \\ 0.545 \\ 0.658 \\ 0.808 \\ 1.035 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.330 \\ 0.390 \\ 0.457 \\ \hline \end{array}$	81.8 82.0 81.6 80.9 81.3 80.8 $\frac{\langle \theta \rangle}{114.3}$ 113.9 113.7 113.5 113.9 112.9 114.3	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ \hline 78.10 \\ 59.15 \\ 49.54 \\ 25.59 \\ 18.30 \\ 10.71 \\ 6.69 \\ \end{array}$	± ± ± ± ± d² d² ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \\ 0.68 \\ \hline \\ 0.69 \\ 2.5 \\ \hline \\ 0.69 \\ 0.68 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.67 1.06 1.08 0.85 0.69
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$ \begin{array}{c} 0.391 \\ 0.460 \\ 0.550 \\ 0.660 \\ 0.798 \\ 1.029 \\ \hline \\ \hline \\ 0.148 \\ 0.181 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.390 \\ 0.460 \\ 0.546 \\ \hline \end{array} $	66.7 66.9 67.0 66.4 66.4 65.9 97.8 97.2 96.8 97.0 97.0 97.0 97.1	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ 48.84 \\ 35.47 \\ 19.56 \\ 14.39 \\ 8.90 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ d^2 \\ \pm \end{array}$	$\begin{array}{c} 2.68 \\ 1.95 \\ 1.46 \\ 0.86 \\ 0.42 \\ 0.11 \\ \hline)05 \\ \hline \sigma/dpd0 \\ 5.53 \\ 4.17 \\ 3.65 \\ 2.56 \\ 2.20 \\ 1.59 \\ 1.15 \\ 0.80 \\ \end{array}$	\(\frac{\pm}{\pm}\) \(\frac{\pm}{\pm}\) \(\pm\) \(\pm\	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41 1.73 1.64 1.10 0.93	$\begin{array}{c} 0.389 \\ 0.457 \\ 0.545 \\ 0.658 \\ 0.808 \\ 1.035 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.330 \\ 0.390 \\ 0.457 \\ 0.547 \\ \hline \end{array}$	81.8 82.0 81.6 80.9 81.3 80.8 (θ) 114.3 113.7 113.5 113.9 112.9 114.3 111.7	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ 105 < \theta \\ \hline \\ 78.10 \\ 59.15 \\ 49.54 \\ 25.59 \\ 18.30 \\ 10.71 \\ 6.69 \\ 3.10 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \\ 0.65 \\ \hline 0.60 \\ 0.68 \\ 0.39 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.67 1.06 1.08 0.85 0.69 0.43
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 	0.391 0.460 0.550 0.660 0.798 1.029 (p _T) 0.148 0.181 0.219 0.269 0.330 0.390 0.460 0.546 0.662	66.7 66.9 67.0 66.4 66.4 65.9 97.8 97.2 96.6 97.0 96.8 97.0 97.1 96.2	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ 48.84 \\ 35.47 \\ 19.56 \\ 14.39 \\ 8.90 \\ 3.64 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline \\ < 10 \\ d^2 \\ \pm \\ $	$\begin{array}{c} 2.68 \\ 1.95 \\ 1.46 \\ 0.86 \\ 0.42 \\ 0.11 \\ \hline 05 \\ \hline \sigma/\mathrm{d}p\mathrm{d}0 \\ \hline 5.53 \\ 4.17 \\ 3.65 \\ 2.56 \\ 2.20 \\ 1.59 \\ 1.15 \\ 0.80 \\ 0.44 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41 1.73 1.64 1.10 0.93 0.52	0.389 0.457 0.545 0.658 0.808 1.035 0.145 0.178 0.219 0.267 0.330 0.457 0.547 0.650	81.8 82.0 81.6 80.9 81.3 80.8 (θ) 114.3 113.9 113.7 113.5 113.9 114.3 111.7 113.1	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ 105 < \theta \\ \hline \\ 78.10 \\ 59.15 \\ 49.54 \\ 25.59 \\ 18.30 \\ 10.71 \\ 6.69 \\ 3.10 \\ 1.26 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \hline \\ < 12 \\ d^2 \\ \pm \\ $	2.27 1.48 1.06 0.71 0.27 0.08 25 $\sigma/\mathrm{d}p\mathrm{d}$ 4.15 2.83 2.72 1.60 1.35 1.00 0.68 0.39 0.23	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.66 1.08 0.85 0.69 0.43 0.23
0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	$ \begin{array}{c} 0.391 \\ 0.460 \\ 0.550 \\ 0.660 \\ 0.798 \\ 1.029 \\ \hline \\ \hline \\ 0.148 \\ 0.181 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.390 \\ 0.460 \\ 0.546 \\ \hline \end{array} $	66.7 66.9 67.0 66.4 66.4 65.9 97.8 97.2 96.8 97.0 97.0 97.0 97.1	$\begin{array}{c} 55.41 \\ 41.44 \\ 30.30 \\ 13.42 \\ 5.37 \\ 1.24 \\ \hline \\ 90 < \theta \\ \hline \\ 71.23 \\ 85.81 \\ 70.75 \\ 48.84 \\ 35.47 \\ 19.56 \\ 14.39 \\ 8.90 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} < 10 \\ d^2 \\ \pm \end{array}$	$\begin{array}{c} 2.68 \\ 1.95 \\ 1.46 \\ 0.86 \\ 0.42 \\ 0.11 \\ \hline)05 \\ \hline \sigma/dpd0 \\ 5.53 \\ 4.17 \\ 3.65 \\ 2.56 \\ 2.20 \\ 1.59 \\ 1.15 \\ 0.80 \\ \end{array}$	\(\frac{\pm}{\pm}\) \(\frac{\pm}{\pm}\) \(\pm\) \(\pm\	1.90 1.73 1.78 1.11 0.63 0.24 4.14 3.68 2.41 1.73 1.64 1.10 0.93	$\begin{array}{c} 0.389 \\ 0.457 \\ 0.545 \\ 0.658 \\ 0.808 \\ 1.035 \\ \hline \\ \hline \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.267 \\ 0.330 \\ 0.390 \\ 0.457 \\ 0.547 \\ \end{array}$	81.8 82.0 81.6 80.9 81.3 80.8 (θ) 114.3 113.7 113.5 113.9 112.9 114.3 111.7	$\begin{array}{c} 38.25 \\ 23.05 \\ 15.71 \\ 8.68 \\ 2.21 \\ 0.58 \\ \hline \\ 105 < \theta \\ \hline \\ 78.10 \\ 59.15 \\ 49.54 \\ 25.59 \\ 18.30 \\ 10.71 \\ 6.69 \\ 3.10 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2.27 \\ 1.48 \\ 1.06 \\ 0.71 \\ 0.27 \\ 0.08 \\ \hline \\ 0.65 \\ \hline 0.60 \\ 0.68 \\ 0.39 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	1.21 1.15 0.87 0.31 0.13 4.12 2.51 1.67 1.06 1.08 0.85 0.69 0.43

Table A.36: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^- + Cu $\to \pi^-$ + X interactions with -12.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1			$20 < \theta$	9 < 3	80					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	24.7	336.97	±	13.30	±	25.79	0.115	34.7	277.43	±	11.66	±	20.63
0.13-0.16	0.145	24.6	400.32	\pm	13.15	\pm	23.77	0.146	34.8	287.28	\pm	10.95	\pm	16.81
0.16-0.20	0.180	24.6	478.17	\pm	12.09	\pm	23.83	0.180	34.8	312.10	\pm	9.67	\pm	15.31
0.20-0.24	0.220	24.8	456.53	\pm	11.63	\pm	18.98	0.220	34.7	327.66	\pm	9.80	\pm	13.39
0.24-0.30	0.269	24.7	408.90	\pm	8.85	\pm	13.54	0.269	34.7	309.01	\pm	7.71	\pm	10.27
0.30-0.36	0.329	24.8	365.95	\pm	8.33	\pm	10.32	0.330	34.6	246.75	\pm	6.83	\pm	6.95
0.36-0.42	0.389	24.7	268.01	\pm	7.14	\pm	7.74	0.389	34.7	209.84	\pm	6.29	\pm	5.98
0.42-0.50	0.457	24.6	215.86	\pm	5.53	\pm	7.78	0.458	34.7	154.13	\pm	4.61	\pm	5.39
0.50-0.60	0.547	24.6	144.51	\pm	4.04	\pm	7.29	0.546	34.7	98.77	\pm	3.34	\pm	4.81
0.60-0.72	0.655	24.7	85.74	\pm	2.81	\pm	6.10	0.654	34.8	58.99	\pm	2.32	\pm	4.05
0.72-0.90								0.795	34.6	26.58	\pm	1.24	\pm	2.60
			$40 < \ell$	9 < 5	50					$50 < \theta$	< 60)		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	-5 0		$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2	
0.10-0.13	0.115	44.9	219.10	±	10.54	±	16.70	\r 1 /	127			/ -F		
0.13-0.16	0.145	44.7	239.20	\pm	10.06	\pm	14.21	0.145	54.7	199.84	\pm	9.19	\pm	12.20
0.16-0.20	0.180	44.9	253.44	\pm	8.74	\pm	12.48	0.180	54.8	195.46	\pm	7.65	\pm	9.55
0.20-0.24	0.220	44.7	249.84	\pm	8.57	\pm	10.32	0.219	55.0	202.45	\pm	7.71	\pm	8.14
0.24-0.30	0.269	44.7	225.02	\pm	6.61	\pm	7.47	0.270	54.5	165.98	\pm	5.73	\pm	5.45
0.30-0.36	0.329	44.7	183.41	\pm	5.98	\pm	5.18	0.329	54.7	132.01	\pm	5.06	\pm	3.75
0.36-0.42	0.388	44.5	140.33	\pm	5.07	\pm	4.14	0.390	54.7	115.90	\pm	4.70	\pm	3.56
0.42-0.50	0.458	44.9	110.29	\pm	3.96	\pm	4.07	0.458	54.9	84.40	\pm	3.43	\pm	3.28
0.50-0.60	0.547	44.7	68.62	\pm	2.70	\pm	3.56	0.543	54.9	45.33	\pm	2.21	\pm	2.45
0.60-0.72	0.654	44.8	45.95	\pm	2.04	\pm	3.36	0.646	54.8	28.45	\pm	1.59	\pm	2.15
0.72-0.90	0.800	44.9	18.67	\pm	1.04	\pm	1.94	0.797	54.5	11.95	\pm	0.83	\pm	1.28
0.90-1.25								1.037	54.8	2.57	\pm	0.24	\pm	0.45
			$60 < \theta$	9 < 7	'5					$75 < \theta$	< 90)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.13-0.16	0.145	67.5	169.95	\pm	7.16	\pm	10.00	0.147	81.8	137.41	\pm	8.61	\pm	15.89
0.16-0.20	0.179	67.3	158.80	\pm	5.61	\pm	7.28	0.179	82.0	127.28	\pm	5.12	\pm	5.61
	0.179	07.0		\pm	5.21	\pm	5.24	0.219	82.0	116 11	\pm	4.78	\pm	4.20
0.20-0.24	0.179	67.1	139.85				٠.2.	0.219	02.0	116.11		4.70	1	3.41
0.20-0.24 0.24-0.30	1		139.85 127.24	\pm	4.12	\pm	4.23	0.219	82.0	89.46	\pm	3.54	\pm	5.41
0.24-0.30 0.30-0.36	0.219 0.268 0.327	67.1 67.1 67.1	127.24 95.86		4.12 3.57	$_{\pm}$		1		89.46 65.30		3.54 2.98	\pm	2.39
0.24–0.30 0.30–0.36 0.36–0.42	0.219 0.268 0.327 0.387	67.1 67.1 67.1 67.1	127.24 95.86 77.10	± ± ±	4.12 3.57 3.16	$_{\pm}$	4.23 2.90 2.60	0.269 0.326 0.387	82.0 81.7 81.4	89.46 65.30 40.08	± ± ±	3.54 2.98 2.32	$_{\pm}$	2.39 1.76
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.219 0.268 0.327 0.387 0.456	67.1 67.1 67.1 67.1 66.5	127.24 95.86 77.10 49.66	± ± ±	4.12 3.57 3.16 2.18	± ± ±	4.23 2.90 2.60 2.21	0.269 0.326 0.387 0.457	82.0 81.7 81.4 81.4	89.46 65.30 40.08 31.18	± ± ±	3.54 2.98 2.32 1.74	± ± ±	2.39 1.76 1.80
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.219 0.268 0.327 0.387 0.456 0.542	67.1 67.1 67.1 67.1 66.5 67.0	127.24 95.86 77.10 49.66 33.53	± ± ± ±	4.12 3.57 3.16 2.18 1.60	± ± ±	4.23 2.90 2.60 2.21 2.08	0.269 0.326 0.387 0.457 0.541	82.0 81.7 81.4 81.4 81.1	89.46 65.30 40.08 31.18 18.10	± ± ± ±	3.54 2.98 2.32 1.74 1.15	± ± ±	2.39 1.76 1.80 1.44
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.219 0.268 0.327 0.387 0.456 0.542 0.649	67.1 67.1 67.1 67.1 66.5 67.0 66.8	127.24 95.86 77.10 49.66 33.53 17.58	± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02	± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50	0.269 0.326 0.387 0.457 0.541 0.648	82.0 81.7 81.4 81.4 81.1 81.9	89.46 65.30 40.08 31.18 18.10 7.58	± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67	± ± ± ±	2.39 1.76 1.80 1.44 0.82
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.219 0.268 0.327 0.387 0.456 0.542 0.649 0.785	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1	127.24 95.86 77.10 49.66 33.53 17.58 6.45	± ± ± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47	± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80	0.269 0.326 0.387 0.457 0.541 0.648 0.789	82.0 81.7 81.4 81.4 81.1 81.9 81.5	89.46 65.30 40.08 31.18 18.10 7.58 3.16	± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34	± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.219 0.268 0.327 0.387 0.456 0.542 0.649	67.1 67.1 67.1 67.1 66.5 67.0 66.8	127.24 95.86 77.10 49.66 33.53 17.58 6.45 1.23	± ± ± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14	± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50	0.269 0.326 0.387 0.457 0.541 0.648	82.0 81.7 81.4 81.4 81.1 81.9	89.46 65.30 40.08 31.18 18.10 7.58 3.16 0.60	± ± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10	± ± ± ±	2.39 1.76 1.80 1.44 0.82
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.219 0.268 0.327 0.387 0.456 0.542 0.649 0.785 1.005	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1	127.24 95.86 77.10 49.66 33.53 17.58 6.45	± ± ± ± ± ± ± ± < 10	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14	± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3	89.46 65.30 40.08 31.18 18.10 7.58 3.16	± ± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10	± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.219 0.268 0.327 0.387 0.456 0.542 0.649 0.785 1.005	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1	$\begin{array}{c} 127.24 \\ 95.86 \\ 77.10 \\ 49.66 \\ 33.53 \\ 17.58 \\ 6.45 \\ 1.23 \\ \hline 90 < \theta \end{array}$	$\pm \\ \pm \\ d^{2}$	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05	± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \end{array}$	$ \begin{array}{c} \pm \\ \hline d^2 \end{array} $	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25	± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16	0.219 0.268 0.327 0.387 0.456 0.542 0.649 0.785 1.005	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 $\langle \theta \rangle$ 99.0	$\begin{array}{c} 127.24 \\ 95.86 \\ 77.10 \\ 49.66 \\ 33.53 \\ 17.58 \\ 6.45 \\ 1.23 \\ \hline 90 < \theta \\ \hline \end{array}$	± ± ± ± ± ± d ² d ²	$\begin{array}{c} 4.12\\ 3.57\\ 3.16\\ 2.18\\ 1.60\\ 1.02\\ 0.47\\ \hline 0.14\\ \hline 05\\ \hline 37.95\\ \end{array}$	± ± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019 $\langle p_{\rm T} \rangle$ 0.145	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ \end{array}$	± ± ± ± ± ± ± d ² d ² ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 $\sigma/\mathrm{d}p\mathrm{d}\Omega$	± ± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 P _T 0.13–0.16 0.16–0.20	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 (θ) 99.0 97.4	$\begin{array}{c} 127.24 \\ 95.86 \\ 77.10 \\ 49.66 \\ 33.53 \\ 17.58 \\ 6.45 \\ 1.23 \\ \hline 90 < \theta \\ \hline 174.16 \\ 106.65 \\ \end{array}$	± ± ± ± ± ± d ² d ² ± ±	$\begin{array}{c} 4.12\\ 3.57\\ 3.16\\ 2.18\\ 1.60\\ 1.02\\ 0.47\\ \hline 0.14\\ \hline 0.5\\ \hline 37.95\\ 4.60\\ \end{array}$	± ± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019 $\langle p_{\rm T} \rangle$ 0.145 0.179	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 (θ) 114.2 113.8	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ 76.83 \\ \end{array}$	$\begin{array}{c} \pm \\ \end{array}$ $\begin{array}{c} \pm \\ \pm \\ \pm \\ \end{array}$ $\begin{array}{c} \pm \\ \pm \\ \end{array}$	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 7 / dpds 4.46 3.35	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \hline \\ 0.144 \\ 0.179 \\ 0.220 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 (θ) 99.0 97.4 97.1	$\begin{array}{c} 127.24 \\ 95.86 \\ 77.10 \\ 49.66 \\ 33.53 \\ 17.58 \\ 6.45 \\ 1.23 \\ \hline 90 < \theta \\ \hline 174.16 \\ 106.65 \\ 90.48 \\ \end{array}$	± ± ± ± ± ± d ² d ² ± ± ±	$\begin{array}{c} 4.12\\ 3.57\\ 3.16\\ 2.18\\ 1.60\\ 1.02\\ 0.47\\ \hline 0.14\\ \hline 0.5\\ \hline 37.95\\ 4.60\\ 4.31\\ \end{array}$	± ± ± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019 $\langle p_{\rm T} \rangle$ 0.145 0.179 0.217	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 $\langle \theta \rangle$ 114.2 113.8 113.5	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ \end{array}$	± ± ± ± ± ± d ² d ² ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 6 / dpd9 4.46 3.35 2.80	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \hline \\ 0.144 \\ 0.179 \\ 0.220 \\ 0.266 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 (θ) 99.0 97.4 97.1 96.7	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ \end{array}$	± ± ± ± ± ± d ² ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05 8 \(\sigma/\text{dpdG}\) 37.95 4.60 4.31 2.81	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019 $\langle p_{\rm T} \rangle$ 0.145 0.179 0.217 0.265	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 $\langle \theta \rangle$ 114.2 113.8 113.5 113.4	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ \end{array}$	± ± ± ± ± ± d ² ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 $\sigma/\mathrm{d}p\mathrm{d}S$ 4.46 3.35 2.80 1.83	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51
0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.220 \\ 0.266 \\ 0.326 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 99.0 97.4 97.1 96.7 97.2	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline \\ 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ 38.41\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05 37.95 4.60 4.31 2.81 2.29	\(\frac{\pm}{\pm}\) \(\frac{\pm}{\pm}\) \(\frac{\pm}{\pm}\) \(\frac{\pm}{\pm}\) \(\pm\) \(\pm\	2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04 1.75	$ \begin{array}{c} 0.269 \\ 0.326 \\ 0.387 \\ 0.457 \\ 0.541 \\ 0.648 \\ 0.789 \\ 1.019 \\ \hline \\ \hline \\ 0.145 \\ 0.179 \\ 0.217 \\ 0.265 \\ 0.326 \\ \end{array} $	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 $\langle \theta \rangle$ 114.2 113.8 113.5 113.4 113.0	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ 20.55 \\ \end{array}$	± ± ± ± ± ± d ² d ² ± ± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 \(\sigma / \delta pdS \) 4.46 3.35 2.80 1.83 1.45	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51 1.38
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.220 \\ 0.266 \\ 0.326 \\ 0.387 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 99.0 97.4 97.1 96.7 97.2 96.8	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ 38.41\\ 29.19\\ \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05 6 \sigma/dpds 37.95 4.60 4.31 2.81 2.29 1.97	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04 1.75 1.78	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019 0.145 0.145 0.179 0.217 0.265 0.326 0.387	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 (θ) 114.2 113.8 113.5 113.4 113.0 113.0	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ 20.55 \\ 12.85 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 $\sigma/\mathrm{d}p\mathrm{d}S$ 4.46 3.35 2.80 1.83 1.45 1.11	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51 1.38 1.16
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.220 \\ 0.266 \\ 0.326 \\ 0.387 \\ 0.454 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 99.0 97.4 97.1 96.7 97.2 96.8 96.8	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline \\ 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ 38.41\\ 29.19\\ 18.65\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05 37.95 4.60 4.31 2.81 2.29 1.97 1.34	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04 1.75 1.78 1.55	$ \begin{array}{c} 0.269 \\ 0.326 \\ 0.387 \\ 0.457 \\ 0.541 \\ 0.648 \\ 0.789 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.387 \\ 0.452 \\ \end{array} $	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 $\langle \theta \rangle$ 114.2 113.5 113.4 113.0 112.5	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ 20.55 \\ 12.85 \\ 7.35 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 $\sigma/\mathrm{d}p\mathrm{d}s$ 4.46 3.35 2.80 1.83 1.45 1.11 0.73	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51 1.38 1.16 0.87
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.220 \\ 0.266 \\ 0.326 \\ 0.387 \\ 0.454 \\ 0.539 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 99.0 97.4 97.1 96.7 97.2 96.8 96.8	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline \\ 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ 38.41\\ 29.19\\ 18.65\\ 8.96\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05 37.95 4.60 4.31 2.81 2.29 1.97 1.34 0.81	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04 1.75 1.78 1.55 1.02	$ \begin{array}{c} 0.269 \\ 0.326 \\ 0.387 \\ 0.457 \\ 0.541 \\ 0.648 \\ 0.789 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.387 \\ 0.452 \\ 0.545 \\ \end{array} $	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 (φ) 114.2 113.8 113.5 113.4 113.0 112.5 112.7	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ 20.55 \\ 12.85 \\ 7.35 \\ 2.50 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 $\sigma/\mathrm{d}p\mathrm{d}S$ 4.46 3.35 2.80 1.83 1.45 1.11 0.73 0.36	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51 1.38 1.16 0.87 0.39
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \\ \hline \\ \hline $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 99.0 97.4 97.1 96.7 97.2 96.8 96.8 96.6 96.5	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline \\ 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ 38.41\\ 29.19\\ 18.65\\ 8.96\\ 3.56\\ \end{array}$	# # # # # # # # # # # # # # # # # # #	$\begin{array}{c} 4.12\\ 3.57\\ 3.16\\ 2.18\\ 1.60\\ 1.02\\ 0.47\\ \hline 0.14\\ \hline \\ 0.5\\ \hline \\ 0.7\\ 0.14\\ \hline \\ 0.81\\ 0.46\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04 1.75 1.78 1.55 1.02 0.55	0.269 0.326 0.387 0.457 0.541 0.648 0.789 1.019 $\langle p_{\rm T} \rangle$ 0.145 0.179 0.217 0.265 0.326 0.387 0.452 0.545	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 (θ) 114.2 113.5 113.4 113.0 112.5 112.7 111.3	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ 20.55 \\ 12.85 \\ 7.35 \\ 2.50 \\ 0.55 \\ \end{array}$	$\begin{array}{c} \pm \\ \pm $	$\begin{array}{c} 3.54 \\ 2.98 \\ 2.32 \\ 1.74 \\ 1.15 \\ 0.67 \\ 0.34 \\ \hline 0.10 \\ \hline \end{array}$ $\begin{array}{c} 25 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 4.46 \\ 3.35 \\ 2.80 \\ 1.83 \\ 1.45 \\ 1.11 \\ 0.73 \\ 0.36 \\ 0.16 \\ \end{array}$	\(\frac{\pm}{\pm}\) \(\pm\) \(2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51 1.38 1.16 0.87 0.39 0.11
0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	$ \begin{array}{c} 0.219 \\ 0.268 \\ 0.327 \\ 0.387 \\ 0.456 \\ 0.542 \\ 0.649 \\ 0.785 \\ 1.005 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.144 \\ 0.179 \\ 0.220 \\ 0.266 \\ 0.326 \\ 0.387 \\ 0.454 \\ 0.539 \\ \end{array} $	67.1 67.1 67.1 67.1 66.5 67.0 66.8 66.1 67.1 99.0 97.4 97.1 96.7 97.2 96.8 96.8	$\begin{array}{c} 127.24\\ 95.86\\ 77.10\\ 49.66\\ 33.53\\ 17.58\\ 6.45\\ 1.23\\ \hline \\ 90 < \theta\\ \hline \\ 174.16\\ 106.65\\ 90.48\\ 57.89\\ 38.41\\ 29.19\\ 18.65\\ 8.96\\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	4.12 3.57 3.16 2.18 1.60 1.02 0.47 0.14 05 37.95 4.60 4.31 2.81 2.29 1.97 1.34 0.81	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	4.23 2.90 2.60 2.21 2.08 1.50 0.80 0.23 21.73 4.51 3.14 2.04 1.75 1.78 1.55 1.02	$ \begin{array}{c} 0.269 \\ 0.326 \\ 0.387 \\ 0.457 \\ 0.541 \\ 0.648 \\ 0.789 \\ 1.019 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.217 \\ 0.265 \\ 0.326 \\ 0.387 \\ 0.452 \\ 0.545 \\ \end{array} $	82.0 81.7 81.4 81.4 81.1 81.9 81.5 80.3 (φ) 114.2 113.8 113.5 113.4 113.0 112.5 112.7	$\begin{array}{c} 89.46 \\ 65.30 \\ 40.08 \\ 31.18 \\ 18.10 \\ 7.58 \\ 3.16 \\ 0.60 \\ \hline \\ 105 < \theta \\ \\ \hline \\ 92.78 \\ 76.83 \\ 52.47 \\ 33.18 \\ 20.55 \\ 12.85 \\ 7.35 \\ 2.50 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	3.54 2.98 2.32 1.74 1.15 0.67 0.34 0.10 25 $\sigma/\mathrm{d}p\mathrm{d}s$ 4.46 3.35 2.80 1.83 1.45 1.11 0.73 0.36	\(\frac{\pmu}{\pmu}\) \(\pmu\) \(\pm\)	2.39 1.76 1.80 1.44 0.82 0.47 0.14 5.14 2.76 1.83 1.51 1.38 1.16 0.87 0.39

Table A.37: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in p + Cu \rightarrow p + X interactions with +15.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta$) < 3	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.20-0.24	0.219	25.1	515.44	±	14.55	±	49.81							
0.24-0.30	0.268	25.1	479.44	\pm	11.19	\pm	39.68	0.269	34.9	505.59	\pm	11.82	\pm	37.86
0.30-0.36	0.327	25.1	401.51	\pm	10.35	\pm	27.67	0.328	34.8	456.14	\pm	10.68	\pm	26.93
0.36-0.42	0.386	25.2	359.38	\pm	9.91	\pm	20.55	0.387	35.0	368.96	\pm	9.81	\pm	17.72
0.42-0.50	0.454	25.3	285.30	\pm	7.51	\pm	13.32	0.454	35.0	313.72	\pm	8.07	\pm	13.24
0.50-0.60	0.542	25.2	218.05	\pm	5.81	\pm	9.34	0.541	35.0	217.80	\pm	6.05	\pm	10.67
0.60-0.72	0.648	25.1	156.33	\pm	4.40	\pm	9.44	0.645	35.1	166.26	\pm	4.89	\pm	11.44
0.72-0.90								0.788	35.0	92.76	±	2.94	\pm	9.98
			$40 < \theta$							$50 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	5		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.30-0.36	0.328	45.1	462.44	\pm	10.49	\pm	20.38							
0.36-0.42	0.387	45.2	396.25	\pm	9.74	\pm	13.20	0.387	55.1	423.52	\pm	9.66	\pm	14.19
0.42-0.50	0.456	45.0	338.67	\pm	8.09	\pm	10.54	0.456	55.1	347.45	\pm	7.99	\pm	11.02
0.50-0.60	0.544	45.0	238.40	\pm	6.31	\pm	11.82	0.543	54.9	235.73	\pm	6.07	\pm	12.31
0.60-0.72	0.652	44.9	165.20	\pm	4.98	\pm	12.84	0.651	54.9	143.18	\pm	4.61	\pm	12.40
0.72-0.90	0.796	44.9	89.79	\pm	3.07	\pm	10.53	0.795	55.0	82.02	\pm	2.95	\pm	10.40
0.90-1.25	1.024	44.9	29.27	\pm	1.24	\pm	5.61	1.026	55.0	24.51	±	1.14	±	4.88
			$60 < \theta$							$75 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	5		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.50-0.60	0.546	67.6	229.15	\pm	4.62	\pm	13.42							
0.60-0.72	0.654	67.4	140.87	\pm	3.54	\pm	14.14	0.653	81.7	98.39	\pm	2.77	\pm	13.13
0.72-0.90	0.795	66.8	64.54	\pm	2.10	\pm	10.50	0.794	81.7	41.62	\pm	1.68	\pm	8.19
0.90-1.25	1.029	66.9	17.44	±	0.81	±	4.73	1.031	81.4	9.13	±	0.61	土	2.82
			$90 < \theta$							$105 < \theta$				
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.42-0.50								0.459	113.8	108.92	±	2.98	±	10.44
0.50-0.60								0.544	112.9	59.74	\pm	2.02	\pm	10.43
0.60-0.72	0.652	97.2	60.37	\pm	2.16	\pm	10.27	0.648	112.9	24.15	\pm	1.30	\pm	6.62
0.72-0.90	0.795	96.9	21.88	\pm	1.21	\pm	5.00	0.788	112.6	6.96	\pm	0.61	\pm	2.89
0.90-1.25	1.026	96.8	3.86	\pm	0.41	\pm	1.30	1.013	112.2	1.22	±	0.19	\pm	0.81

Table A.38: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in p + Cu $\to \pi^+$ + X interactions with +15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	$\theta < 3$	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	24.8	331.64	±	15.68	±	38.06	0.115	34.8	263.62	±	13.12	±	28.46
0.13-0.16	0.145	24.8	386.36	\pm	15.10	\pm	36.09	0.145	34.7	316.28	\pm	13.38	\pm	28.78
0.16-0.20	0.180	24.9	449.85	\pm	13.55	\pm	35.69	0.180	34.7	315.94	\pm	11.23	\pm	24.37
0.20-0.24	0.219	24.9	457.24	\pm	13.61	\pm	30.34	0.219	34.6	350.23	\pm	11.81	\pm	22.24
0.24-0.30	0.268	24.9	416.13	\pm	10.29	\pm	20.72	0.268	34.7	312.53	\pm	9.04	\pm	14.91
0.30-0.36	0.327	24.8	376.04	\pm	9.71	\pm	13.14	0.327	34.7	261.20	\pm	8.25	\pm	8.86
0.36-0.42	0.386	24.7	300.03	\pm	8.58	\pm	8.94	0.386	34.7	215.37	\pm	7.34	\pm	6.51
0.42-0.50	0.453	24.8	234.41	\pm	6.58	\pm	10.06	0.454	34.7	160.99	\pm	5.55	\pm	6.81
0.50-0.60	0.543	24.8	154.73	\pm	4.62	\pm	10.99	0.541	34.8	109.71	\pm	3.87	\pm	7.73
0.60-0.72	0.647	24.8	98.76	\pm	3.19	\pm	11.11	0.647	34.7	65.41	\pm	2.64	\pm	7.24
0.72-0.90								0.789	34.5	33.04	\pm	1.43	\pm	5.67
			$40 < \theta$	9 < 5	50					$50 < \theta$	< 60)		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	-5 0		$\frac{\partial}{\partial \sigma} \frac{\partial}{\partial p} d\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2	
0.10-0.13	0.116	44.9	230.55	±	13.07	±	25.70	\r 1 /	127			/ -F		
0.13-0.16	0.145	44.8	243.66	\pm	11.52	\pm	22.30	0.145	55.1	196.26	\pm	10.39	\pm	17.83
0.16-0.20	0.180	44.9	269.62	\pm	10.41	\pm	20.76	0.179	54.9	219.11	\pm	9.25	\pm	16.21
0.20-0.24	0.220	44.8	268.10	\pm	10.30	\pm	16.98	0.219	54.6	201.03	\pm	8.68	±	11.99
0.24-0.30	0.269	44.7	243.35	\pm	8.01	\pm	11.42	0.268	54.8	183.19	\pm	7.01	\pm	8.08
0.30-0.36	0.327	44.7	184.18	\pm	6.87	\pm	6.12	0.328	54.6	143.44	\pm	6.14	\pm	4.55
0.36-0.42	0.387	44.8	156.38	\pm	6.26	\pm	4.97	0.387	54.5	110.80	\pm	5.30	\pm	3.97
0.42-0.50	0.456	44.9	106.05	\pm	4.47	\pm	4.91	0.455	54.5	81.80	\pm	3.89	\pm	4.43
0.50-0.60	0.544	44.7	80.41	\pm	3.43	\pm	5.99	0.545	54.7	57.04	\pm	2.91	\pm	4.83
0.60-0.72	0.650	44.5	45.07	\pm	2.25	\pm	5.14	0.650	54.5	29.62	\pm	1.78	\pm	3.79
0.72-0.90	0.791	44.5	21.92	\pm	1.22	\pm	3.77	0.791	54.6	14.05	\pm	0.96	\pm	2.61
1	1	ı	l					1						
0.90-1.25								1.016	54.7	2.68	\pm	0.23	\pm	0.82
0.90–1.25			$60 < \theta$	$\theta < 7$	'5			1.016	54.7				±	0.82
	$\langle p_{ m T} \rangle$	(θ)	$60 < \theta$		$75 \frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$ 1.016 $ $ \langle p_{\rm T} \rangle$	54.7 ⟨θ⟩	$\frac{2.68}{75 < \theta}$	< 90			0.82
0.90–1.25 p _T 0.13–0.16	$\langle p_{\mathrm{T}} \rangle$ 0.145	(θ) 67.3	60 < 6		$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{8.47}$	Ω ±	16.06				< 90)		14.94
$p_{ m T}$				d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		16.06 12.87	$\langle p_{ m T} angle$	$\langle \theta \rangle$	$75 < \theta$	< 90	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
p _T 0.13-0.16	0.145	67.3	171.26	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{8.47}$	\pm		$\langle p_{\mathrm{T}} \rangle$ 0.147	⟨θ⟩ 81.8	$75 < \theta$	< 90 d ² ±	$\frac{\sigma}{dp}$) ±	14.94
p _T 0.13–0.16 0.16–0.20	0.145 0.179	67.3 67.5	171.26 171.73	# #	$\frac{2\sigma/dpd\Omega}{8.47}$ 6.50	± ±	12.87	$\langle p_{\rm T} \rangle$ 0.147 0.180	(θ) 81.8 81.8	$75 < \theta$ 142.86 126.57	< 90 d ² ± ±	$\frac{10.46}{5.71}$) ± ±	14.94 8.51
<i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	0.145 0.179 0.220	67.3 67.5 67.2	171.26 171.73 172.21	# # #	$\frac{2\sigma/dpd\Omega}{8.47}$ 6.50 6.63	± ± ±	12.87 9.96	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220	(θ) 81.8 81.8 82.1	$75 < \theta$ 142.86 126.57 119.23	< 90 d ² ± ± ±	10.46 5.71 5.39	2 ± ± ±	14.94 8.51 5.89
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.145 0.179 0.220 0.269	67.3 67.5 67.2 67.0	171.26 171.73 172.21 133.35	# # # #	2σ/dpdΩ 8.47 6.50 6.63 4.86	± ± ±	12.87 9.96 5.46	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8	75 < θ 142.86 126.57 119.23 88.01	< 90 d ² ± ± ± ± ± ±	10.46 5.71 5.39 3.96	1 ± ± ± ±	14.94 8.51 5.89 3.32
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.179 0.220 0.269 0.329	67.3 67.5 67.2 67.0 66.9	171.26 171.73 172.21 133.35 90.81	# # # # # #	$\frac{2\sigma/dpd\Omega}{8.47}$ 6.50 6.63 4.86 4.00	± ± ± ± ± ± ±	12.87 9.96 5.46 2.87	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.327	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7	75 < θ 142.86 126.57 119.23 88.01 64.88	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.46 5.71 5.39 3.96 3.52	± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.179 0.220 0.269 0.329 0.392	67.3 67.5 67.2 67.0 66.9 66.7	171.26 171.73 172.21 133.35 90.81 80.12	d ² ± ± ± ± ± ± ±	8.47 6.50 6.63 4.86 4.00 3.80 2.63 1.87	± ± ± ± ±	12.87 9.96 5.46 2.87 3.63	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.327 0.390	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7	75 < θ 142.86 126.57 119.23 88.01 64.88 42.64	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.46 5.71 5.39 3.96 3.52 2.76	12 ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7	171.26 171.73 172.21 133.35 90.81 80.12 53.52 35.79 20.55	d ² ± ± ± ± ± ± ± ± ±	8.47 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29	± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.327 0.390 0.456 0.553 0.650	(θ) 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5	75 < θ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd9}{10.46} $ 5.71 5.39 3.96 3.52 2.76 1.99 1.27 0.92	12 ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4	171.26 171.73 172.21 133.35 90.81 80.12 53.52 35.79 20.55 5.44	d ² ± ± ± ± ± ± ± ± ± ±	8.47 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29 0.46	± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \end{array}$	(θ) 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.46 5.71 5.39 3.96 3.52 2.76 1.99 1.27 0.92 0.34	2 ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7	171.26 171.73 172.21 133.35 90.81 80.12 53.52 35.79 20.55 5.44 1.11	d ² ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{8.47}$ 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29 0.46 0.12	± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.327 0.390 0.456 0.553 0.650	(θ) 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\sigma/dpdS$ 10.46 5.71 5.39 3.96 3.52 2.76 1.99 1.27 0.92 0.34 0.08	12 ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4	171.26 171.73 172.21 133.35 90.81 80.12 53.52 35.79 20.55 5.44	d ² ± ± ± ± ± ± ± ± ± = < 10	8.47 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29 0.46 0.12	* * * * * * * * * * * * *	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \end{array}$	\(\langle \text{\alpha}\) 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± = ± ± ± ± ± ± ±	$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4	171.26 171.73 172.21 133.35 90.81 80.12 53.52 35.79 20.55 5.44 1.11	d ² ± ± ± ± ± ± ± ± ± = < 10	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{8.47}$ 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29 0.46 0.12	* * * * * * * * * * * * *	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \end{array}$	(θ) 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± = ± ± ± ± ± ± ±	$\sigma/dpdS$ 10.46 5.71 5.39 3.96 3.52 2.76 1.99 1.27 0.92 0.34 0.08	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ)	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline 90 < \theta \\ \\ 132.66 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ $	8.47 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29 0.46 0.12 05 9.73	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ \hline \end{array}$	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35		$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ \end{array}$	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ) 98.0 97.1	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline 90 < \theta \\ \\ \hline 132.66 \\ 115.80 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	8.47 6.50 6.63 4.86 4.00 3.80 2.63 1.87 1.29 0.46 0.12 05 2 \(\sigma \) \(\delta	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1 $\langle \theta \rangle$ 115.2 114.2	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79		$\begin{array}{c} \hline 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline 0.08 \\ \hline 25 \\ \hline 5.41 \\ 3.69 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ) 98.0 97.1 97.3	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline \\ 0.5 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 9.73 \\ 5.56 \\ 4.71 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1 $\langle \theta \rangle$ 115.2 114.2 113.5	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80		$ \begin{array}{c} \hline 0 \\ \hline 0 \\ \hline 0 \\ \hline 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.267	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ) 98.0 97.1 97.3 97.1	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline \\ 0.5 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 9.73 \\ 5.56 \\ 4.71 \\ 3.43 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39 15.63 6.78 3.75 2.59	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1 $\langle \theta \rangle$ 115.2 114.2 113.5 113.8	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \hline 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline 5.41 \\ 3.69 \\ 3.49 \\ 2.23 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.329 \\ 0.392 \\ 0.457 \\ 0.548 \\ 0.655 \\ 0.794 \\ 1.028 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.267 \\ 0.326 \\ \end{array} $	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ) 98.0 97.1 97.3 97.1 96.7	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ 35.85 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline 0.5 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 9.73 \\ 5.56 \\ 4.71 \\ 3.43 \\ 2.56 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39 15.63 6.78 3.75 2.59 2.37	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1 $\langle \theta \rangle$ 115.2 114.2 113.5 113.8 113.4	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60 18.84	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \hline 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ 3.69 \\ 2.23 \\ 1.57 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33 1.99
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.267 0.326 0.389	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ) 98.0 97.1 97.3 97.1 96.7 96.3	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline \\ 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ 35.85 \\ 29.97 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 9.73 \\ 5.56 \\ 4.71 \\ 3.43 \\ 2.56 \\ 2.33 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	12.87 9.96 5.46 2.87 3.63 3.68 3.23 1.25 0.39 15.63 6.78 3.75 2.59 2.37 3.02	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.8 82.1 81.8 81.7 81.6 81.6 81.6 81.5 80.7 81.1 $\langle \theta \rangle$ 115.2 114.2 113.5 113.8 113.4 112.6	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60 18.84 12.02	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline 25 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ 3.69 \\ 2.23 \\ 1.57 \\ 1.25 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33 1.99 1.80
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.267 0.326 0.389 0.457	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 (θ) 98.0 97.1 97.3 97.1 96.7 96.3 97.3	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline \\ 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ 35.85 \\ 29.97 \\ 14.63 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline \\ 0.05 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ 9.73 \\ 5.56 \\ 4.71 \\ 3.43 \\ 2.56 \\ 2.33 \\ 1.40 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39 15.63 6.78 3.75 2.59 2.37 3.02 2.10	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ 0.457 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ \hline 81.8 \\ 81.8 \\ 82.1 \\ 81.8 \\ 82.1 \\ 81.6 \\ 81.6 \\ 81.6 \\ 81.5 \\ 80.7 \\ 81.1 \\ \hline \\ \langle \theta \rangle \\ \hline 115.2 \\ 114.2 \\ 113.5 \\ 113.8 \\ 113.4 \\ 112.6 \\ 113.3 \\ \end{array} $	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60 18.84 12.02 7.02	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ 3.69 \\ 2.23 \\ 1.57 \\ 1.25 \\ 0.80 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33 1.99 1.80 1.41
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.267 0.326 0.389 0.457 0.542	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 98.0 97.1 97.3 97.1 96.7 96.3 97.3 96.0	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline \\ 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ 35.85 \\ 29.97 \\ 14.63 \\ 8.78 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline \\ 0.05 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.73 \\ 5.56 \\ 4.71 \\ 3.43 \\ 2.56 \\ 2.33 \\ 1.40 \\ 0.95 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39 15.63 6.78 3.75 2.59 2.37 3.02 2.10 1.77	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ 0.457 \\ 0.537 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ \hline 81.8 \\ 81.8 \\ 82.1 \\ 81.8 \\ 82.1 \\ 81.6 \\ 81.6 \\ 81.6 \\ 81.5 \\ 80.7 \\ 81.1 \\ \hline \\ \langle \theta \rangle \\ \hline 115.2 \\ 114.2 \\ 113.5 \\ 113.8 \\ 112.6 \\ 113.3 \\ 112.2 \\ \end{array} $	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60 18.84 12.02 7.02 4.22	<pre>< 90 d² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±</pre>	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ \hline 0.08 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ 3.69 \\ 3.49 \\ 2.23 \\ 1.57 \\ 1.25 \\ 0.80 \\ 0.61 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33 1.99 1.80 1.41
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.267 0.326 0.389 0.457 0.542 0.650	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 98.0 97.1 97.3 97.1 96.7 96.3 97.3 96.0 97.5	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline \\ 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ 35.85 \\ 29.97 \\ 14.63 \\ 8.78 \\ 3.18 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta \) \(\d	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39 15.63 6.78 3.75 2.59 2.37 3.02 2.10 1.77 0.87	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ 0.457 \\ \end{array}$	$ \begin{array}{c} \langle\theta\rangle \\ 81.8 \\ 81.8 \\ 82.1 \\ 81.8 \\ 82.1 \\ 81.6 \\ 81.6 \\ 81.6 \\ 81.5 \\ 80.7 \\ 81.1 \\ \hline \\ \langle\theta\rangle \\ 115.2 \\ 114.2 \\ 113.5 \\ 113.8 \\ 113.4 \\ 112.6 \\ 113.3 \\ 112.2 \\ 111.1 \\ \end{array} $	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60 18.84 12.02 7.02	<pre>< 90 d² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±</pre>	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ 0.08 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ 3.69 \\ 3.49 \\ 2.23 \\ 1.57 \\ 1.25 \\ 0.80 \\ 0.61 \\ 0.24 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33 1.99 1.80 1.41 1.14 0.41
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.179 0.220 0.269 0.329 0.392 0.457 0.548 0.655 0.794 1.028 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.267 0.326 0.389 0.457 0.542	67.3 67.5 67.2 67.0 66.9 66.7 66.4 66.7 66.4 65.4 98.0 97.1 97.3 97.1 96.7 96.3 97.3 96.0	$\begin{array}{c} 171.26 \\ 171.73 \\ 172.21 \\ 133.35 \\ 90.81 \\ 80.12 \\ 53.52 \\ 35.79 \\ 20.55 \\ 5.44 \\ 1.11 \\ \hline \\ 90 < \theta \\ \\ 132.66 \\ 115.80 \\ 93.19 \\ 64.74 \\ 35.85 \\ 29.97 \\ 14.63 \\ 8.78 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 8.47 \\ 6.50 \\ 6.63 \\ 4.86 \\ 4.00 \\ 3.80 \\ 2.63 \\ 1.87 \\ 1.29 \\ 0.46 \\ 0.12 \\ \hline \\ 0.05 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.73 \\ 5.56 \\ 4.71 \\ 3.43 \\ 2.56 \\ 2.33 \\ 1.40 \\ 0.95 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	12.87 9.96 5.46 2.87 3.63 3.68 3.84 3.23 1.25 0.39 15.63 6.78 3.75 2.59 2.37 3.02 2.10 1.77	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.327 \\ 0.390 \\ 0.456 \\ 0.553 \\ 0.650 \\ 0.792 \\ 1.009 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.328 \\ 0.390 \\ 0.457 \\ 0.537 \\ \hline \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ \hline 81.8 \\ 81.8 \\ 82.1 \\ 81.8 \\ 82.1 \\ 81.6 \\ 81.6 \\ 81.6 \\ 81.5 \\ 80.7 \\ 81.1 \\ \hline \\ \langle \theta \rangle \\ \hline 115.2 \\ 114.2 \\ 113.5 \\ 113.8 \\ 112.6 \\ 113.3 \\ 112.2 \\ \end{array} $	$75 < \theta$ 142.86 126.57 119.23 88.01 64.88 42.64 29.05 16.61 9.53 2.80 0.47 $105 < \theta$ 102.35 77.79 61.80 36.60 18.84 12.02 7.02 4.22	<pre>< 90 d² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±</pre>	$\begin{array}{c} \hline 0 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.46 \\ 5.71 \\ 5.39 \\ 3.96 \\ 3.52 \\ 2.76 \\ 1.99 \\ 1.27 \\ 0.92 \\ 0.34 \\ \hline 0.08 \\ \hline 25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 5.41 \\ 3.69 \\ 3.49 \\ 2.23 \\ 1.57 \\ 1.25 \\ 0.80 \\ 0.61 \\ \end{array}$	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	14.94 8.51 5.89 3.32 3.00 2.66 2.75 2.30 1.85 0.77 0.20 6.70 3.77 2.46 2.33 1.99 1.80 1.41

Table A.39: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in p + Cu $\to \pi^-$ + X interactions with +15.0 GeV/c beam momentum; the first error is statistical, the second systematic; p_T in GeV/c, polar angle θ in degrees.

			$20 < \theta$	$\theta < 3$	80					$30 < \theta$	< 40)		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	24.8	344.60	±	15.25	±	39.45	0.116	34.9	320.51	±	14.45	±	36.37
0.13-0.16	0.146	24.7	406.02	\pm	15.10	\pm	38.77	0.146	34.6	307.68	\pm	12.92	\pm	29.21
0.16-0.20	0.181	24.8	441.20	\pm	13.25	\pm	35.20	0.180	34.8	328.26	\pm	11.25	\pm	25.97
0.20-0.24	0.221	24.6	393.00	\pm	12.05	\pm	24.65	0.221	34.8	353.01	\pm	11.75	\pm	22.34
0.24-0.30	0.272	24.8	372.00	\pm	9.61	\pm	16.42	0.271	34.9	294.50	\pm	8.59	\pm	13.22
0.30-0.36	0.331	24.9	314.61	\pm	8.87	\pm	9.25	0.331	34.7	245.91	\pm	7.78	\pm	7.39
0.36-0.42	0.393	24.9	245.81	\pm	7.75	\pm	8.13	0.392	34.8	182.87	\pm	6.66	\pm	5.93
0.42-0.50	0.462	24.9	171.11	\pm	5.63	\pm	9.34	0.460	34.7	125.04	\pm	4.63	\pm	6.55
0.50-0.60	0.553	24.8	136.98	\pm	4.58	\pm	12.26	0.552	34.7	89.14	\pm	3.63	\pm	7.63
0.60-0.72	0.661	24.8	68.35	\pm	2.86	\pm	9.20	0.664	34.5	52.06	\pm	2.45	\pm	6.73
0.72-0.90								0.808	34.6	20.12	\pm	1.16	\pm	3.89
			$40 < \theta$) / 5	50					$50 < \theta$	< 60	<u> </u>		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$	10 \ 0		$\frac{\partial}{\partial \sigma/\mathrm{d}p\mathrm{d}\Omega}$)		$\langle p_{ m T} \rangle$	$\langle \theta \rangle$	00 \ 0	$\frac{1}{d^2}$	$\sigma/\mathrm{d}p\mathrm{d}\Omega$)	
0.10-0.13	0.116	45.2	265.28	±	13.90	±	31.17	\P'1'/	\07		- u	o / apas		
0.13-0.16	0.110	44.8	233.45	±	11.09	±	22.44	0.145	55.0	183.29	\pm	9.80	\pm	17.33
0.15-0.10	0.143	44.6	258.06	±	9.91	±	20.52	0.143	54.9	199.21	±	8.56	±	15.19
0.10-0.20	0.180	45.0	231.70	±	9.36	±	14.69	0.180	54.8	207.08	±	8.98	±	12.46
0.24-0.30	0.269	44.9	229.95	±	7.62	土	10.17	0.269	55.0	164.74	±	6.54	\pm	6.95
0.30-0.36	0.330	44.7	190.94	±	6.98	土	5.72	0.330	54.8	134.25	±	5.79	士	4.09
0.36-0.42	0.390	44.7	136.43	±	5.66	土	4.80	0.391	54.8	108.13	±	5.21	\pm	4.21
0.42-0.50	0.350	44.8	101.85	±	4.24	\pm	5.81	0.351	54.7	77.91	±	3.83	\pm	4.81
0.50-0.60	0.549	44.7	75.36	±	3.30	土	6.98	0.548	54.9	42.20	±	2.42	\pm	4.13
0.60-0.72	0.657	44.9	35.43	±	1.98	土	4.95	0.657	54.7	24.29	±	1.62	士	3.53
0.72-0.90	0.802	44.7	17.92	±	1.14	±	3.63	0.801	54.7	11.42	±	0.90	±	2.39
0.72-0.90	0.802	44.7	17.92		1.14		3.03	1.024	54.0	2.11	±	0.25	±	0.69
0.70 1.23														
			60 < () / 5	7 5									
n _{rr}	/nm\	/A\	$60 < \theta$)				$75 < \theta$	< 90)		
p _T	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		18 25	$\langle p_{ m T} angle$	$\langle heta angle$	$75 < \theta$	< 90 d^2	$\sigma/\mathrm{d}p\mathrm{d}s$	Ω	
0.13-0.16	0.145	67.3	203.06	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.62}$	±	18.25	$\langle p_{\mathrm{T}} \rangle$ 0.147	⟨θ⟩ 82.1	$75 < \theta$	< 90 d ² ±	$\frac{1}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	Ω ±	9.71
0.13-0.16 0.16-0.20	0.145 0.180	67.3 67.3	203.06 169.68	d ² ± ±	$\frac{2\sigma/dpd9}{9.62}$ 6.45	± ±	11.67	$\langle p_{\rm T} \rangle$ 0.147 0.180	(θ) 82.1 81.9	$75 < \theta$ 112.22 139.35	< 90 d ² ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{7.68}$ 6.15	Ω ± ±	9.71 8.68
0.13-0.16 0.16-0.20 0.20-0.24	0.145 0.180 0.220	67.3 67.3 67.1	203.06 169.68 160.16	# # #	9.62 6.45 6.36	± ± ±	11.67 8.36	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220	(θ) 82.1 81.9 81.7	75 < θ 112.22 139.35 116.70	< 90 d ² ± ± ±	$\frac{1}{\sigma/dpd9}$ 7.68 6.15 5.42	12 ± ± ±	9.71 8.68 5.20
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.180 0.220 0.269	67.3 67.3 67.1 67.1	203.06 169.68 160.16 127.49	# # # #	$\frac{2\sigma/dpd9}{9.62}$ $\frac{6.45}{6.36}$ $\frac{4.69}{6.9}$	± ± ±	11.67 8.36 4.65	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267	(θ) 82.1 81.9 81.7 81.7	75 < θ 112.22 139.35 116.70 83.83	< 90 d ² ± ± ± ± ± ±	$\frac{\sigma}{dpdQ}$ 7.68 6.15 5.42 3.80	12 ± ± ± ±	9.71 8.68 5.20 2.92
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.145 0.180 0.220 0.269 0.328	67.3 67.3 67.1 67.1 67.4	203.06 169.68 160.16 127.49 96.17	# # # # # #	9.62 6.45 6.36 4.69 4.08	± ± ± ±	11.67 8.36 4.65 3.13	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.329	(θ) 82.1 81.9 81.7 81.7 81.7	75 < θ 112.22 139.35 116.70 83.83 62.68	< 90 d ² ± ± ± ± ± ± ± ±	7.68 6.15 5.42 3.80 3.42	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.180 0.220 0.269 0.328 0.388	67.3 67.3 67.1 67.1 67.4 66.8	203.06 169.68 160.16 127.49 96.17 76.71	d ² ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{9.62}$ $\frac{9.62}{6.45}$ $\frac{6.36}{4.69}$ $\frac{4.08}{3.60}$	± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.329 0.389	(θ) 82.1 81.9 81.7 81.7 81.7 81.8	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.68 6.15 5.42 3.80 3.42 2.84	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.145 0.180 0.220 0.269 0.328 0.388 0.456	67.3 67.3 67.1 67.1 67.4 66.8 66.9	203.06 169.68 160.16 127.49 96.17 76.71 49.51	d ² ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpd\Omega}{9.62}$ $\frac{9.62}{6.45}$ $\frac{6.36}{4.69}$ $\frac{4.08}{3.60}$ $\frac{2.47}{6.36}$	± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.329 0.389 0.456	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76 25.04	< 90 d ² ± ± ± ± ± ±	7.68 6.15 5.42 3.80 3.42 2.84 1.75	± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2	203.06 169.68 160.16 127.49 96.17 76.71 49.51 34.06	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/dpds}{9.62}$ 9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83	± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.329 0.389 0.456 0.543	82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\sigma/dpds$ 7.68 6.15 5.42 3.80 3.42 2.84 1.75 1.24	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0	203.06 169.68 160.16 127.49 96.17 76.71 49.51 34.06 15.33	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{9.62}$ $\frac{9.62}{6.45}$ $\frac{6.36}{4.69}$ $\frac{4.08}{3.60}$ $\frac{2.47}{1.83}$ $\frac{1.04}{1.04}$	± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.329 0.389 0.456 0.543 0.650	82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\sigma/dpd9$ 7.68 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72	10 ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5	203.06 169.68 160.16 127.49 96.17 76.71 49.51 34.06 15.33 5.94	d ² ± ± ± ± ± ± ± ± ± ±	9.62 9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83 1.04 0.52	± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 81.2	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.68 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72 0.35	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0	203.06 169.68 160.16 127.49 96.17 76.71 49.51 34.06 15.33 5.94 1.42	d ² ± ± ± ± ± ± ± ± ± ± ±	9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83 1.04 0.52 0.17	± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55	$\langle p_{\rm T} \rangle$ 0.147 0.180 0.220 0.267 0.329 0.389 0.456 0.543 0.650	82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.68 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72 0.35 0.06	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0	203.06 169.68 160.16 127.49 96.17 76.71 49.51 34.06 15.33 5.94	d ² ± ± ± ± ± ± ± ± ± = ± = < 10	9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83 1.04 0.52 0.17	* * * * * * * * * * * *	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \end{array}$	\$\langle \langle \text{\(\text{\\circ}\exitingth}\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	75 < θ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{c} \hline 0 \\ \hline \sigma/\text{d}p\text{d}S \\ 7.68 \\ 6.15 \\ 5.42 \\ 3.80 \\ 3.42 \\ 2.84 \\ 1.75 \\ 1.24 \\ 0.72 \\ 0.35 \\ 0.06 \\ \end{array} $	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.544 \\ 0.656 \\ 0.797 \\ 1.026 \\ \hline \end{array} $	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0	$\begin{array}{c} 203.06 \\ 169.68 \\ 160.16 \\ 127.49 \\ 96.17 \\ 76.71 \\ 49.51 \\ 34.06 \\ 15.33 \\ 5.94 \\ 1.42 \\ \hline \\ 90 < \theta \\ \end{array}$	d ² ± ± ± ± ± ± ± d ²	9.62 9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83 1.04 0.52 0.17	± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51	$\langle p_{\mathrm{T}} \rangle$ 0.147 0.180 0.220 0.267 0.329 0.389 0.456 0.543 0.650 0.786 1.025	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 81.2 82.3	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$		$\sigma/dpds$ 7.68 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72 0.35 0.06	π ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.544 \\ 0.656 \\ 0.797 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ \end{array} $	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0	$\begin{array}{c} 203.06 \\ 169.68 \\ 160.16 \\ 127.49 \\ 96.17 \\ 76.71 \\ 49.51 \\ 34.06 \\ 15.33 \\ 5.94 \\ 1.42 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 137.67 \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ $	9.62 9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83 1.04 0.52 0.17 05 2 \(\sigma \) \(\delta \) \(\d	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 81.2 82.3	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48		7.68 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72 0.35 0.06 25	1Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.544 \\ 0.656 \\ 0.797 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ \end{array} $	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 (θ) 97.5 97.6	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \\ \hline \\ 137.67\\ 107.79\\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.62 9.62 6.45 6.36 4.69 4.08 3.60 2.47 1.83 1.04 0.52 0.17 05 2 \(\sigma \) \(\dots \)	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.9 \\ 81.7 \\ 81.7 \\ 81.7 \\ 81.8 \\ 81.5 \\ 81.4 \\ 82.2 \\ 81.2 \\ 82.3 \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.4 \\ 114.0 \\ \hline \end{array} $	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16		$\begin{array}{c} \hline 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ 7.68 \\ 6.15 \\ 5.42 \\ 3.80 \\ 3.42 \\ 2.84 \\ 1.75 \\ 1.24 \\ 0.72 \\ 0.35 \\ 0.06 \\ \hline \end{array}$	1Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.358 \\ 0.456 \\ 0.544 \\ 0.656 \\ 0.797 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.146 \\ 0.180 \\ 0.218 \\ \end{array} $	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \hline \\ 137.67\\ 107.79\\ 85.06\\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} ?\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.62 \\ 9.62 \\ 6.45 \\ 6.36 \\ 4.69 \\ 4.08 \\ 3.60 \\ 2.47 \\ 1.83 \\ 1.04 \\ 0.52 \\ 0.17 \\ \hline 0.5 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 10.41 \\ 5.27 \\ 4.61 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 82.1 \\ 81.9 \\ 81.7 \\ 81.7 \\ 81.7 \\ 81.8 \\ 81.5 \\ 81.4 \\ 82.2 \\ 81.2 \\ 82.3 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 114.0 \\ 113.4 \\ \end{array} $	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89		$\begin{array}{c} \hline 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.68 \\ 6.15 \\ 5.42 \\ 3.80 \\ 3.42 \\ 2.84 \\ 1.75 \\ 1.24 \\ 0.72 \\ 0.35 \\ 0.06 \\ \hline 5.66 \\ 3.83 \\ 3.24 \\ \end{array}$	1	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.388 \\ 0.456 \\ 0.544 \\ 0.656 \\ 0.797 \\ 1.026 \\ \hline \\ \hline \\ \sqrt{p_{\rm T}}\rangle \\ 0.146 \\ 0.180 \\ 0.218 \\ 0.268 \\ \hline \end{array} $	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2 97.1	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \hline \\ 137.67\\ 107.79\\ 85.06\\ 61.68\\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 9.62 \\ 6.45 \\ 6.36 \\ 4.69 \\ 4.08 \\ 3.60 \\ 2.47 \\ 1.83 \\ 1.04 \\ 0.52 \\ 0.17 \\ \hline 05 \\ \hline \hline 2\sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 10.41 \\ 5.27 \\ 4.61 \\ 3.28 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51 12.12 6.22 3.33 2.52	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 81.2 82.3 $\langle \theta \rangle$ 114.4 114.0 113.4 113.6	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97		$\begin{array}{c} \hline 0 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 7.68 \\ 6.15 \\ 5.42 \\ 3.80 \\ 3.42 \\ 2.84 \\ 1.75 \\ 1.24 \\ 0.72 \\ 0.35 \\ 0.06 \\ \hline 5.66 \\ 3.83 \\ 3.24 \\ 2.06 \\ \end{array}$	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026 (p _T) 0.146 0.180 0.218 0.268 0.328	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2 97.1 96.6	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \\ \hline \\ 137.67\\ 107.79\\ 85.06\\ 61.68\\ 39.32\\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.62 \\ 6.45 \\ 6.36 \\ 4.69 \\ 4.08 \\ 3.60 \\ 2.47 \\ 1.83 \\ 1.04 \\ 0.52 \\ 0.17 \\ \hline 0.5 \\ \hline 0.17 \\ \hline 0.5 \\ 4.61 \\ 3.28 \\ 2.65 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 81.2 82.3 $\langle \theta \rangle$ 114.4 113.6 114.0	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97 18.60		$ \frac{\sigma/\text{d}p\text{d}S}{7.68} $ 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72 0.35 0.06 25 $ \frac{\sigma/\text{d}p\text{d}S}{5.66} $ 3.83 3.24 2.06 1.57	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09
0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026 (p _T) 0.146 0.180 0.218 0.268 0.328 0.391	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.0 66.5 67.0 97.5 97.6 97.2 97.1 96.6 96.8	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \\ \hline \\ 137.67\\ 107.79\\ 85.06\\ 61.68\\ 39.32\\ 21.89\\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.62 \\ 9.62 \\ 6.45 \\ 6.36 \\ 4.69 \\ 4.08 \\ 3.60 \\ 2.47 \\ 1.83 \\ 1.04 \\ 0.52 \\ 0.17 \\ \hline 0.5 \\ \hline 0.17 \\ \hline 0.5 \\ 3.28 \\ 2.65 \\ 1.94 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51 12.12 6.22 3.33 2.52 2.92 2.46	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.387 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.8 81.5 81.4 82.2 82.3 $\langle \theta \rangle$ 114.4 113.6 114.0 114.0	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97 18.60 11.54	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\text{d}p\text{d}S}{7.68} $ 6.15 5.42 3.80 3.42 2.84 1.75 1.24 0.72 0.35 0.06 25 $ \frac{\sigma/\text{d}p\text{d}S}{5.66} $ 3.83 3.24 2.06 1.57 1.19	10 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09 7.40 3.24 2.44 2.53 2.31 2.00
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026 (p _T) 0.146 0.180 0.218 0.268 0.328 0.391 0.456	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2 97.1 96.6 96.8 96.6	$\begin{array}{c} 203.06 \\ 169.68 \\ 160.16 \\ 127.49 \\ 96.17 \\ 76.71 \\ 49.51 \\ 34.06 \\ 15.33 \\ 5.94 \\ 1.42 \\ \hline \\ 90 < \theta \\ \hline \\ 137.67 \\ 107.79 \\ 85.06 \\ 61.68 \\ 39.32 \\ 21.89 \\ 16.92 \\ \end{array}$	d2 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.62}$ $\frac{9.62}{6.45}$ $\frac{6.36}{6.36}$ $\frac{4.69}{4.08}$ $\frac{3.60}{2.47}$ $\frac{2.47}{1.83}$ $\frac{1.04}{0.52}$ $\frac{0.5}{0.17}$ $\frac{205}{0.10}$ $\frac{205}{10.41}$ $\frac{205}{5.27}$ $\frac{4.61}{3.28}$ $\frac{3.28}{2.65}$ $\frac{1.94}{1.43}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51 12.12 6.22 3.33 2.52 2.92 2.46 2.71	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.454 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 82.3 $\langle \theta \rangle$ 114.4 113.6 114.0 113.4	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97 18.60 11.54 6.74	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{c} \hline $	20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09 7.40 3.24 2.44 2.53 2.31 2.00 1.56
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026 (p _T) 0.146 0.180 0.218 0.268 0.328 0.391 0.456 0.547	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2 97.1 96.6 96.8 96.6 97.9	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \hline \\ 137.67\\ 107.79\\ 85.06\\ 61.68\\ 39.32\\ 21.89\\ 16.92\\ 8.39\\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.62}$ $\frac{9.62}{6.45}$ $\frac{6.36}{6.36}$ $\frac{4.69}{4.08}$ $\frac{3.60}{2.47}$ $\frac{2.47}{1.83}$ $\frac{1.04}{0.52}$ $\frac{0.57}{0.17}$ $\frac{205}{0.17}$ $$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51 12.12 6.22 3.33 2.52 2.92 2.46 2.71 1.87	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.454 \\ 0.541 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.8 81.5 81.4 82.2 82.3 $\langle \theta \rangle$ 114.4 113.6 114.0 113.4 111.7	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97 18.60 11.54 6.74 2.55	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±		20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09 7.40 3.24 2.44 2.53 2.31 2.00 1.56 0.78
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026 (p _T) 0.146 0.180 0.218 0.228 0.391 0.456 0.547 0.644	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2 97.1 96.6 96.8 96.6 97.9 96.3	$\begin{array}{c} 203.06 \\ 169.68 \\ 160.16 \\ 127.49 \\ 96.17 \\ 76.71 \\ 49.51 \\ 34.06 \\ 15.33 \\ 5.94 \\ 1.42 \\ \hline \\ 90 < \theta \\ \hline \\ 137.67 \\ 107.79 \\ 85.06 \\ 61.68 \\ 39.32 \\ 21.89 \\ 16.92 \\ 8.39 \\ 3.44 \\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 9.62 \\ 9.62 \\ 6.45 \\ 6.36 \\ 4.69 \\ 4.08 \\ 3.60 \\ 2.47 \\ 1.83 \\ 1.04 \\ 0.52 \\ \hline 0.17 \\ \hline \end{array}$ $\begin{array}{c} 0.52 \\ \sigma/\mathrm{d}p\mathrm{d}S \\ \hline 1.041 \\ 5.27 \\ 4.61 \\ 3.28 \\ 2.65 \\ 1.94 \\ 1.43 \\ 0.94 \\ 0.53 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51 12.12 6.22 3.33 2.52 2.92 2.46 2.71 1.87 1.04	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.454 \\ \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.7 81.8 81.5 81.4 82.2 82.3 $\langle \theta \rangle$ 114.4 113.6 114.0 113.4	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97 18.60 11.54 6.74	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \begin{array}{c} \hline $	20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09 7.40 3.24 2.44 2.53 2.31 2.00 1.56
0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 PT 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.220 0.269 0.328 0.388 0.456 0.544 0.656 0.797 1.026 (p _T) 0.146 0.180 0.218 0.268 0.328 0.391 0.456 0.547	67.3 67.3 67.1 67.1 67.4 66.8 66.9 67.2 67.0 66.5 67.0 97.5 97.6 97.2 97.1 96.6 96.8 96.6 97.9	$\begin{array}{c} 203.06\\ 169.68\\ 160.16\\ 127.49\\ 96.17\\ 76.71\\ 49.51\\ 34.06\\ 15.33\\ 5.94\\ 1.42\\ \hline \\ 90 < \theta\\ \hline \\ 137.67\\ 107.79\\ 85.06\\ 61.68\\ 39.32\\ 21.89\\ 16.92\\ 8.39\\ \end{array}$	d' ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}S}{9.62}$ $\frac{9.62}{6.45}$ $\frac{6.36}{6.36}$ $\frac{4.69}{4.08}$ $\frac{3.60}{2.47}$ $\frac{2.47}{1.83}$ $\frac{1.04}{0.52}$ $\frac{0.57}{0.17}$ $\frac{205}{0.17}$ $$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	11.67 8.36 4.65 3.13 3.71 3.76 3.91 2.55 1.39 0.51 12.12 6.22 3.33 2.52 2.92 2.46 2.71 1.87	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.180 \\ 0.220 \\ 0.267 \\ 0.329 \\ 0.389 \\ 0.456 \\ 0.543 \\ 0.650 \\ 0.786 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.387 \\ 0.454 \\ 0.541 \\ \hline \end{array}$	$\langle \theta \rangle$ 82.1 81.9 81.7 81.7 81.8 81.5 81.4 82.2 82.3 $\langle \theta \rangle$ 114.4 113.6 114.0 113.4 111.7	$75 < \theta$ 112.22 139.35 116.70 83.83 62.68 44.76 25.04 15.68 7.03 2.29 0.19 $105 < \theta$ 111.48 79.16 52.89 32.97 18.60 11.54 6.74 2.55	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±		20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	9.71 8.68 5.20 2.92 3.37 3.28 2.65 2.38 1.48 0.66 0.09 7.40 3.24 2.44 2.53 2.31 2.00 1.56 0.78

Table A.40: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^+ + Cu \to p + X interactions with +15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			20 <							$30 < \theta$	< 4	0		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.20-0.24	0.221	25.7	434.31	±	117.18	\pm	43.62							
0.24-0.30	0.275	25.6	172.89	\pm	58.21	\pm	15.15	0.267	34.8	399.52	\pm	87.13	\pm	31.89
0.30-0.36	0.329	25.3	468.50	\pm	96.58	\pm	35.53	0.331	35.3	410.74	\pm	87.94	\pm	26.88
0.36-0.42	0.388	24.1	250.81	\pm	69.23	\pm	16.34	0.387	35.5	246.54	\pm	70.16	\pm	14.11
0.42-0.50	0.455	26.2	204.26	\pm	56.01	\pm	11.49	0.463	34.9	183.84	\pm	53.89	\pm	9.77
0.50-0.60	0.541	25.7	149.88	\pm	41.63	\pm	7.95	0.542	36.0	171.57	\pm	47.54	\pm	10.00
0.60-0.72	0.639	24.2	68.93	\pm	22.45	\pm	4.71	0.648	33.8	57.64	\pm	24.90	\pm	4.35
0.72-0.90								0.761	35.0	47.23	\pm	18.24	\pm	5.31
			40 <	$\theta < 1$	50					$50 < \theta$	< 6	0		
$p_{ m T}$	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.30-0.36	0.318	45.7	479.44	\pm	92.69	\pm	25.87							
0.36-0.42	0.391	43.9	290.70	\pm	71.30	\pm	12.84	0.385	54.9	367.71	\pm	77.28	\pm	16.59
0.42-0.50	0.460	46.5	178.64	\pm	52.00	\pm	7.69	0.455	54.9	264.65	\pm	60.62	\pm	11.25
0.50-0.60	0.549	44.1	149.60	\pm	43.26	\pm	8.82	0.537	55.5	213.14	\pm	50.73	\pm	12.82
0.60-0.72	0.653	44.7	135.00	\pm	38.75	\pm	11.34	0.670	55.1	58.89	\pm	25.72	\pm	5.44
0.72-0.90	0.776	45.7	40.84	\pm	18.02	\pm	4.94	0.797	55.6	93.71	\pm	27.48	\pm	12.24
0.90-1.25	1.055	43.8	20.61	±	8.97	±	4.02	1.040	54.9	14.65	±	7.73	±	2.95
			60 <	$\theta < 0$	75					$75 < \theta$		-		
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.50-0.60	0.540	67.7	195.47	\pm	37.40	\pm	12.67							
0.60-0.72	0.663	64.8	99.29	\pm	25.71	\pm	10.34	0.652	82.0	76.93	\pm	21.45	\pm	10.47
0.72-0.90	0.794	65.9	17.55	\pm	9.32	\pm	2.89	0.793	82.7	49.67	\pm	15.95	\pm	9.81
0.90-1.25	1.022	65.6	8.43	\pm	4.86	\pm	2.30	1.047	82.9	10.14	\pm	5.49	\pm	3.13
			$90 < \theta$							$105 < \theta$				
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.42-0.50								0.460	113.1	60.82	\pm	19.55	\pm	6.03
0.50-0.60								0.547	113.2	69.67	\pm	18.99	\pm	12.27
0.60-0.72	0.650	96.1	33.11	\pm	14.07	\pm	5.69	0.677	113.8	19.56	\pm	10.19	\pm	5.38
0.72-0.90	0.793	91.7	10.11	\pm	7.09	\pm	2.30	0.754	118.4	8.74	\pm	5.75	\pm	3.61

Table A.41: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^+ + Cu $\to \pi^+$ + X interactions with +15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			20 <	$\theta < 3$	30					$30 < \theta$	$\theta < 4$	0		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d	$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		ď	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.114	27.6	440.28	\pm	166.92	±	50.52	0.123	34.1	185.00	±	90.12	±	20.46
0.13-0.16	0.150	23.6	324.27	\pm	120.96	\pm	31.57	0.148	33.5	367.59	\pm	127.99	\pm	34.88
0.16-0.20	0.175	25.0	353.93	\pm	108.68	\pm	29.73	0.181	34.5	579.48	\pm	134.30	\pm	47.40
0.20-0.24	0.226	23.9	333.45	\pm	98.50	\pm	23.91	0.218	33.7	288.00	\pm	90.00	\pm	19.92
0.24-0.30	0.271	25.4	394.57	\pm	88.29	\pm	22.53	0.269	34.4	490.59	\pm	98.23	\pm	27.09
0.30-0.36	0.326	25.4	316.78	\pm	78.97	\pm	14.20	0.331	34.7	369.81	\pm	86.41	\pm	16.28
0.36-0.42	0.387	24.3	464.48	\pm	91.77	\pm	19.07	0.390	36.5	204.05	\pm	62.09	\pm	8.48
0.42-0.50	0.450	24.3	206.78	\pm	54.46	\pm	10.62	0.456	33.4	160.91	\pm	48.61	\pm	8.22
0.50-0.60	0.545	25.5	189.59	\pm	45.85	\pm	14.51	0.539	33.9	78.45	\pm	28.37	\pm	6.00
0.60-0.72	0.635	23.4	92.02	\pm	25.62	\pm	10.70	0.661	35.1	27.77	\pm	15.40	\pm	3.20
0.72-0.90								0.764	33.0	25.24	\pm	11.53	\pm	4.41
			40 <	$\theta < \delta$	50					$50 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		ď	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	44.9	246.49	\pm	114.58	±	27.63		. ,					
0.13-0.16	0.143	45.2	244.50	\pm	100.80	\pm	23.24	0.155	55.5	167.85	\pm	84.37	\pm	15.80
0.16-0.20	0.179	44.8	218.17	\pm	83.84	\pm	17.77	0.177	55.5	192.27	\pm	79.30	\pm	15.08
0.20-0.24	0.227	46.2	175.65	\pm	75.10	\pm	12.07	0.221	55.9	173.35	\pm	73.10	\pm	11.27
0.24-0.30	0.269	44.5	132.97	\pm	52.40	\pm	7.22	0.269	56.0	205.31	\pm	64.76	\pm	10.42
0.30-0.36	0.321	44.1	222.94	\pm	66.74	\pm	9.65	0.316	54.9	150.23	\pm	55.41	\pm	6.25
0.36-0.42	0.379	45.2	122.42	\pm	47.71	\pm	5.20	0.397	54.9	77.92	\pm	37.88	\pm	3.51
0.42-0.50	0.450	46.6	92.76	\pm	37.10	\pm	5.06	0.459	53.5	75.99	\pm	32.78	\pm	4.62
0.50-0.60	0.551	44.8	89.02	\pm	31.65	\pm	7.14	0.546	52.5	28.52	\pm	17.30	\pm	2.55
0.60-0.72	0.666	43.8	60.03	\pm	22.61	\pm	7.12	0.657	53.8	32.37	\pm	16.40	\pm	4.27
0.72-0.90	0.786	44.8	28.06	\pm	13.04	\pm	4.93	0.811	55.5	11.69	\pm	6.99	\pm	2.22
0.90-1.25								1.090	56.7	0.31	\pm	0.22	\pm	0.09
			60 <							$75 < \ell$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.13-0.16	0.143	67.7	120.32	±	59.36	±	11.66	0.147	84.5	87.31	±	60.93	±	8.66
0.16-0.20	0.175	65.9	236.81	\pm	66.69	\pm	18.78	0.181	81.9	106.23	\pm	47.40	\pm	7.63
0.20-0.24	0.219	67.5	226.55	\pm	65.19	\pm	14.34	0.213	80.3	119.51	\pm	48.93	\pm	6.59
0.24-0.30	0.267	65.7	100.80	\pm	36.78	\pm	4.81	0.277	85.0	96.80	\pm	36.88	\pm	4.25
0.30-0.36	0.336	65.1	115.68	\pm	38.75	\pm	4.68	0.340	80.3	53.26	\pm	27.59	\pm	2.60
0.36-0.42	0.391	66.5	63.14	\pm	29.52	\pm	3.22	0.381	84.2	33.83	\pm	20.54	\pm	2.23
0.42-0.50	0.450	63.6	18.03	\pm	13.13	\pm	1.33	0.455	78.1	37.43	\pm	19.58	\pm	3.61
0.50-0.60	0.555	65.4	27.08	\pm	14.21	\pm	2.99	0.512	83.9	20.83	\pm	12.51	\pm	2.91
0.60-0.72	0.640	64.2	11.64	\pm	8.51	\pm	1.86							
0.72-0.90	0.839	64.8	8.17	\pm	5.06	\pm	1.89							
0.90–1.25	1.070	64.3	2.85	±	1.99	±	1.02							
	, ,	(0)	$90 < \theta$						(0)	105 < 6				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$^{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$			$\langle p_{ m T} \rangle$	$\langle \theta \rangle$			$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		
0.13-0.16	0.154	94.9	78.87	±	55.81	±	7.03	0.141	121.8	53.47	±	30.88	±	3.72
0.16-0.20	0.190	98.6	220.31	±	66.88	±	13.96	0.172	108.6	45.72	±	26.49	±	2.39
0.20-0.24	0.220	96.7	88.60	±	40.44	±	4.10	0.214	113.3	89.36	±	36.82	±	4.01
0.24-0.30	0.271	95.8	51.79	±	26.22	±	2.32	0.263	114.6	11.68	\pm	10.47	\pm	0.78
0.30-0.36	0.336	99.7	39.40	\pm	23.59	\pm	2.67		442.6	4501		10.15		2
0.36-0.42		00.5	16.21		10.70		2	0.399	112.0	17.96	±	13.46	±	2.68
0.42-0.50	0.451	92.7	18.31	±	13.73	±	2.64	0.458	114.2	5.14	±	4.13	±	1.03

Table A.42: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^+ + Cu $\to \pi^-$ + X interactions with +15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

p_{T}			$20 < \theta$	$^{1} < 3$	80					$30 < \theta$	< 4	.0		
1 PI II '	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
	0.107	25.2	271.22	±	127.02	±	31.78	0.121	36.5	214.72	±	100.38	±	24.97
0.13-0.16	0.147	25.8	319.44	\pm	114.59	\pm	31.77	0.147	34.4	346.29	\pm	121.90	\pm	34.20
	0.187	25.0	287.09	\pm	93.56	\pm	24.25	0.188	36.3	394.85	\pm	111.07	\pm	33.09
1	0.223	24.1	188.07	\pm	70.90	\pm	12.93	0.218	34.9	264.27	\pm	89.20	\pm	18.25
	0.266	24.2	413.59	\pm	86.72	\pm	21.70	0.269	35.0	263.30	\pm	71.12	\pm	13.97
	0.331	26.5	304.68	\pm	78.78	\pm	12.52	0.333	35.3	334.19	\pm	79.36	\pm	13.94
	0.389	22.8	245.56	\pm	65.67	\pm	10.85	0.399	34.2	173.20	\pm	55.25	\pm	7.65
	0.451	23.4	90.96	\pm	34.47	\pm	5.65	0.465	33.5	151.68	\pm	43.81	\pm	9.25
	0.558	26.3	113.12	\pm	37.71	\pm	10.69	0.541	36.7	69.77	\pm	28.52	\pm	6.40
1 11	0.664	25.0	46.79	\pm	20.93	\pm	6.47	0.637	32.1	24.89	\pm	14.37	\pm	3.35
0.72-0.90								0.784	33.8	19.37	\pm	9.69	\pm	3.84
			$40 < \theta$) < 5	in					$50 < \theta$				
700	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	40 < 0		$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$)		$\langle p_{ m T} angle$	$\langle \theta \rangle$	00 < 0		$\frac{\sigma}{\sigma/dpd\Omega}$)	
	0.113	46.5	305.22	±	131.15	±	36.09	\P'1'/	\0/		u	J apas		
0.13-0.16			300.22	_	-01110	_	20.07	0.154	54.5	118.37	\pm	66.99	\pm	11.55
1	0.177	47.5	108.69	\pm	53.88	\pm	9.14	0.173	54.8	90.79	\pm	51.75	\pm	7.33
	0.221	43.8	107.17	\pm	54.01	\pm	7.40	0.235	57.9	63.01	\pm	44.56	\pm	4.13
	0.266	43.8	104.08	\pm	42.74	\pm	5.44	0.266	54.1	159.10	\pm	56.31	\pm	7.90
	0.327	45.3	137.21	\pm	52.00	\pm	5.67	0.327	53.2	82.35	\pm	38.53	\pm	3.38
	0.393	46.5	128.18	\pm	48.50	\pm	5.88	0.409	52.6	111.79	\pm	45.65	\pm	5.37
	0.470	44.2	80.05	\pm	32.68	\pm	5.19							
	0.559	44.3	98.20	\pm	32.74	\pm	9.65	0.551	55.7	20.96	\pm	14.82	\pm	2.16
	0.659	45.3	17.04	\pm	12.05	\pm	2.47	0.663	54.9	15.30	\pm	10.83	\pm	2.31
0.72-0.90	0.844	44.5	16.52	\pm	9.54	\pm	3.43	0.729	55.4	11.13	\pm	7.87	\pm	2.38
			$60 < \theta$) < 7						$75 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
	0.151	68.2	63.69	±	45.06	±	5.82	0.153	79.1	92.88	±	60.05	±	8.77
0.16-0.20	0.182	64.0	55.98	\pm	30.25	\pm	4.13	0.186	80.6	106.85	\pm	47.79	\pm	7.21
0.20-0.24	0.224	67.8	157.13	\pm	55.69	\pm	9.17	0.223	82.7	51.76	\pm	30.38	\pm	2.66
	0.264	64.8	86.45	\pm	31.94	\pm	3.82	0.269	81.7	105.57	\pm	37.48	\pm	4.44
	0.334	66.1	143.16	\pm	43.17	\pm	5.95	0.344	77.7	55.94	\pm	28.00	\pm	3.14
0.36-0.42	0.384	69.3	66.24	\pm	29.63	\pm	3.65	0.390	84.7	27.37	\pm	19.36	\pm	2.07
0.42-0.50	0.454	72.0	17.92	\pm	12.68	\pm	1.44							
0.50-0.60	0.553	64.2	43.09	\pm	17.59	\pm	5.10							
0.60-0.72	0.655	64.6	31.69	\pm	12.94	\pm	5.37	0.669	83.3	11.17	\pm	7.90	\pm	2.37
0.72-0.90	0.784	68.9	6.88	\pm	4.86	\pm	1.64							
			$90 < \theta$	< 10	05					$105 < \theta$) < 1	25		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$			$\frac{2\sigma}{\mathrm{d}p\mathrm{d}\Omega}$	2	
	0.135	102.9	130.07	±	109.54	±	11.82	(1 1 /	\ /			, 1		
1	0.177	96.6	89.41	\pm	42.02	\pm	5.63							
I II	0.219	97.4	41.62	\pm	29.43	\pm	1.91	0.226	119.1	44.17	\pm	25.51	\pm	2.23
	0.283	91.8	42.68	\pm	24.64	\pm	2.02	0.257	116.3	29.42	\pm	17.00	\pm	2.33
0.24-0.30 0	0.318	92.1	28.34	\pm	20.04	\pm	2.16	0.319	111.4	41.18	\pm	20.59	\pm	5.13
	0.510	12.1												
0.30-0.36	0.369	96.2	26.45	\pm	18.71	\pm	3.00							

Table A.43: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of protons in π^- + Cu \to p + X interactions with -15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \theta$	< 3	0					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.20-0.24	0.221	25.2	372.72	±	8.38	±	22.62							
0.24-0.30	0.270	25.2	306.80	\pm	5.94	\pm	16.94	0.271	34.8	354.38	\pm	6.36	\pm	18.37
0.30-0.36	0.329	25.2	271.26	\pm	5.67	\pm	14.37	0.329	35.1	328.84	\pm	5.99	\pm	15.34
0.36-0.42	0.390	25.3	223.63	\pm	5.17	\pm	11.54	0.389	35.1	248.65	\pm	5.35	\pm	11.47
0.42-0.50	0.458	25.2	174.87	\pm	3.92	\pm	9.19	0.458	35.1	205.71	\pm	4.33	\pm	10.41
0.50-0.60	0.548	25.1	131.92	\pm	3.02	\pm	7.27	0.546	35.1	153.48	\pm	3.39	\pm	8.68
0.60-0.72	0.656	25.2	98.09	\pm	2.31	\pm	5.58	0.656	35.1	105.17	\pm	2.59	\pm	6.89
0.72-0.90								0.800	35.0	55.38	\pm	1.50	\pm	4.47
			$40 < \theta$							$50 < \theta$	< 60)		
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.30-0.36	0.329	45.1	350.35	\pm	6.06	±	14.81							
0.36-0.42	0.389	45.1	288.98	\pm	5.55	\pm	11.46	0.389	55.1	293.11	\pm	5.36	\pm	12.51
0.42-0.50	0.458	45.1	222.88	\pm	4.38	\pm	9.52	0.458	55.0	230.47	\pm	4.28	\pm	9.07
0.50-0.60	0.548	45.0	152.68	\pm	3.38	\pm	8.35	0.547	55.0	167.50	\pm	3.43	\pm	8.10
0.60-0.72	0.655	44.9	102.84	\pm	2.61	\pm	7.11	0.656	55.1	100.85	\pm	2.59	\pm	6.91
0.72-0.90	0.798	45.1	55.75	\pm	1.60	\pm	4.89	0.798	54.9	50.91	\pm	1.53	\pm	4.57
0.90-1.25	1.035	44.9	15.81	±	0.59	±	1.98	1.034	55.0	14.41	±	0.59	\pm	1.94
			$60 < \theta$							$75 < \theta$				
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.50-0.60	0.546	67.5	157.21	\pm	2.54	\pm	7.58							
0.60-0.72	0.654	67.2	93.72	\pm	1.93	\pm	6.20	0.655	81.8	68.88	\pm	1.54	\pm	5.27
0.72-0.90	0.797	67.2	44.55	\pm	1.17	\pm	4.58	0.797	81.8	29.03	\pm	0.93	\pm	3.29
0.90-1.25	1.033	67.0	12.11	\pm	0.46	±	1.94	1.033	81.5	7.05	\pm	0.36	\pm	1.29
			$90 < \theta$	< 10)5					$105 < \theta$	-	-		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$			$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.42-0.50								0.458	113.5	85.76	\pm	1.74	\pm	5.64
0.50-0.60								0.543	112.9	39.36	\pm	1.10	\pm	3.83
0.60-0.72	0.652	97.1	45.80	\pm	1.26	\pm	4.24	0.650	113.0	15.87	\pm	0.70	\pm	2.31
0.72-0.90	0.789	96.8	14.99	\pm	0.68	\pm	1.95	0.794	112.4	4.58	\pm	0.34	\pm	1.02
0.90-1.25	1.015	96.1	3.13	\pm	0.24	\pm	0.60							

Table A.44: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^+ 's in π^- + Cu $\to \pi^+$ + X interactions with -15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

1			$20 < \ell$	0 < 3	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$2\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
0.10-0.13	0.116	24.8	276.55	±	9.11	±	22.16	0.116	34.6	217.82	±	7.99	±	17.24
0.13-0.16	0.145	25.0	321.41	\pm	8.95	\pm	20.79	0.145	35.0	241.02	\pm	7.59	\pm	15.14
0.16-0.20	0.181	24.9	340.37	\pm	7.57	\pm	18.94	0.181	34.7	253.12	\pm	6.45	\pm	13.88
0.20-0.24	0.220	24.8	356.33	\pm	7.65	\pm	17.76	0.220	34.7	265.88	\pm	6.60	\pm	13.00
0.24-0.30	0.270	24.8	337.10	\pm	6.02	\pm	14.85	0.269	34.7	249.92	\pm	5.19	\pm	10.84
0.30-0.36	0.329	24.7	279.19	\pm	5.42	\pm	11.23	0.329	34.8	218.38	\pm	4.88	\pm	8.64
0.36-0.42	0.389	24.9	232.78	\pm	4.89	\pm	9.24	0.389	34.7	179.76	\pm	4.36	\pm	6.98
0.42-0.50	0.458	24.8	183.14	\pm	3.77	\pm	8.14	0.458	34.7	123.18	\pm	3.06	\pm	5.18
0.50-0.60	0.548	24.8	118.32	\pm	2.57	\pm	6.81	0.546	34.7	83.56	\pm	2.17	\pm	4.45
0.60-0.72	0.655	24.8	76.87	\pm	1.82	\pm	6.25	0.655	34.7	48.19	\pm	1.41	\pm	3.64
0.72-0.90								0.798	34.5	24.19	\pm	0.74	\pm	2.80
			$40 < \theta$) < 5	50					$50 < \theta$	< 60)		
p_{T}	$\langle p_{ m T} \rangle$	$\langle \theta \rangle$			$\frac{1}{2}\sigma/\mathrm{d}p\mathrm{d}\Omega$	2		$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	2	
0.10-0.13	0.116	45.0	187.77	±	7.73	±	15.07	\r 1 /	1.7			,		
0.13-0.16	0.145	44.7	207.93	\pm	7.12	\pm	13.20	0.145	55.2	158.85	\pm	6.26	\pm	10.44
0.16-0.20	0.180	44.8	217.39	\pm	6.01	\pm	11.99	0.181	54.8	166.34	\pm	5.22	\pm	9.12
0.20-0.24	0.220	44.7	198.69	\pm	5.72	\pm	9.73	0.220	54.8	163.30	\pm	5.11	\pm	7.88
0.24-0.30	0.270	44.8	182.93	\pm	4.47	\pm	7.92	0.269	54.8	142.63	\pm	4.00	\pm	6.13
0.30-0.36	0.330	44.8	161.81	\pm	4.19	\pm	6.41	0.330	54.7	113.75	\pm	3.54	\pm	4.49
0.36-0.42	0.389	44.8	128.45	\pm	3.73	\pm	5.03	0.390	54.7	94.23	\pm	3.23	\pm	3.81
0.42-0.50	0.457	44.7	97.33	\pm	2.75	\pm	4.13	0.458	54.8	71.89	\pm	2.39	\pm	3.22
0.50-0.60	0.546	44.7	66.24	\pm	1.97	\pm	3.45	0.545	54.7	43.96	\pm	1.61	\pm	2.44
0.60-0.72	0.652	44.7	36.32	\pm	1.27	\pm	2.56	0.656	54.6	25.14	\pm	1.09	\pm	1.86
0.72-0.90	0.794	44.4	16.31	\pm	0.64	\pm	1.74	0.797	54.4	10.15	\pm	0.51	\pm	1.08
	l .	ı	I					1		!				
0.90-1.25								1.028	54.3	2.43	\pm	0.14	\pm	0.43
0.90–1.25	<u> </u>		$\frac{ }{60 < \epsilon}$) < 7	'5			1.028	54.3				±	0.43
	$\langle p_{\mathrm{T}} \rangle$	(θ)	$\frac{60 < \theta}{}$		$\frac{75}{\sigma/\mathrm{d}p\mathrm{d}\Omega}$	2		$ 1.028 $ $ \langle p_{\rm T} \rangle$	54.3 ⟨θ⟩	$\frac{2.43}{75 < \theta}$	< 90			0.43
0.90–1.25 p _T 0.13–0.16	$\langle p_{\mathrm{T}} \rangle$ 0.146	(θ) 66.9	60 < θ			Ω ±	8.61				< 90)		10.92
$p_{ m T}$				d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		8.61 7.51	$\langle p_{ m T} angle$	$\langle \theta \rangle$	$75 < \theta$	< 90	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω	
p _T 0.13-0.16	0.146	66.9	129.17	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{4.86}$	\pm		$\langle p_{\mathrm{T}} \rangle$ 0.145	⟨θ⟩ 84.2	$75 < \theta$	< 90 d ² ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{43.27}$	Ω ±	10.92
p _T 0.13–0.16 0.16–0.20	0.146 0.180	66.9 67.3	129.17 136.46	# #	$\frac{2\sigma/dpd\Omega}{4.86}$ 3.86	± ±	7.51	$\langle p_{\rm T} \rangle$ 0.145 0.180	(θ) 84.2 82.0	$75 < \theta$ 138.99 100.31	< 90 d ² ± ±	$\frac{\sigma/dpd\Omega}{43.27}$	Ω ± ±	10.92 5.34
p _T 0.13-0.16 0.16-0.20 0.20-0.24	0.146 0.180 0.219	66.9 67.3 67.1	129.17 136.46 122.37	# # #	$\frac{2\sigma/dpd\Omega}{4.86}$ 3.86 3.60	± ± ±	7.51 5.83	$\langle p_{\rm T} \rangle$ 0.145 0.180 0.220	(θ) 84.2 82.0 81.9	$75 < \theta$ 138.99 100.31 88.88	< 90 d ² ± ± ±	$\frac{\sigma/dpd\Omega}{43.27}$ $\frac{3.39}{3.10}$	1) ± ± ±	10.92 5.34 4.05
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.146 0.180 0.219 0.269	66.9 67.3 67.1 67.0	129.17 136.46 122.37 102.67	# # # #	$\frac{2\sigma/dpd\Omega}{4.86}$ $\frac{3.86}{3.60}$ $\frac{2.76}{3.76}$	± ± ±	7.51 5.83 4.29	$\langle p_{\rm T} \rangle$ 0.145 0.180 0.220 0.268	(θ) 84.2 82.0 81.9 81.8	75 < θ 138.99 100.31 88.88 75.59	< 90 d ² ± ± ± ± ± ±	$\frac{\sigma}{dpd\Omega}$ 43.27 3.39 3.10 2.40	± ± ± ±	10.92 5.34 4.05 3.25
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.180 0.219 0.269 0.329	66.9 67.3 67.1 67.0 66.7	129.17 136.46 122.37 102.67 82.04 62.22 45.96	# # # # # #	$\frac{2\sigma/dpd\Omega}{4.86}$ $\frac{4.86}{3.86}$ $\frac{3.60}{2.76}$ $\frac{2.49}{3.60}$	± ± ± ±	7.51 5.83 4.29 3.41	$\langle p_{\rm T} \rangle$ 0.145 0.180 0.220 0.268 0.329	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6	75 < θ 138.99 100.31 88.88 75.59 48.10	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/dpd\Omega}{43.27}$ $\frac{3.39}{3.10}$ $\frac{2.40}{1.92}$	10 ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8	129.17 136.46 122.37 102.67 82.04 62.22 45.96 28.92	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{4.86}$ $\frac{4.86}{3.86}$ $\frac{3.60}{2.76}$ $\frac{2.49}{2.16}$ $\frac{1.59}{1.08}$	± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86	$\langle p_{\rm T} \rangle$ 0.145 0.180 0.220 0.268 0.329 0.388 0.457 0.547	(θ) 84.2 82.0 81.9 81.8 81.6 81.6 81.6	75 < θ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{43.27} $ $ 3.39 $ $ 3.10 $ $ 2.40 $ $ 1.92 $ $ 1.70 $ $ 1.17 $ $ 0.86 $	10 ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8	129.17 136.46 122.37 102.67 82.04 62.22 45.96 28.92 15.36	d ² ± ± ± ± ± ± ± ± ±	$\frac{2\sigma/\mathrm{d}p\mathrm{d}\Omega}{4.86}$ $\frac{4.86}{3.86}$ $\frac{3.60}{2.76}$ $\frac{2.49}{2.16}$ $\frac{1.59}{1.08}$ $\frac{0.70}{0.70}$	± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33	$\langle p_{\rm T} \rangle$ 0.145 0.180 0.220 0.268 0.329 0.388 0.457 0.547 0.652	(θ) 84.2 82.0 81.9 81.8 81.6 81.6 81.6 81.8 81.9	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/dpd9}{43.27} $ 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3	129.17 136.46 122.37 102.67 82.04 62.22 45.96 28.92 15.36 6.15	d ² ± ± ± ± ± ± ± ± ±	2 \sigma/\dpdg 4.86 3.86 3.60 2.76 2.49 2.16 1.59 1.08 0.70 0.33	± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \end{array}$	(\$\theta\$) 84.2 82.0 81.9 81.8 81.6 81.6 81.6 81.7	75 < θ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\sigma/dpd\Omega$ 43.27 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8	129.17 136.46 122.37 102.67 82.04 62.22 45.96 28.92 15.36 6.15 1.35	d ² ± ± ± ± ± ± ± ± ± ±	4.86 3.86 3.60 2.76 2.49 2.16 1.59 1.08 0.70 0.33 0.09	± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33	$\langle p_{\rm T} \rangle$ 0.145 0.180 0.220 0.268 0.329 0.388 0.457 0.547 0.652	(θ) 84.2 82.0 81.9 81.8 81.6 81.6 81.6 81.8 81.9	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{43.27}$ 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25 0.06	12 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4	129.17 136.46 122.37 102.67 82.04 62.22 45.96 28.92 15.36 6.15	d ² ± ± ± ± ± ± ± ± ± ± = < 10	2 \(\sigma/\) \(\delta\) pds \(\frac{4.86}{3.86}\) 3.60 \(2.76\) 2.49 \(2.16\) 1.59 \(1.08\) 0.70 \(0.33\) 0.09 \(0.05\)	* * * * * * * * * * * * *	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \end{array}$	(\(\theta\)) 84.2 82.0 81.9 81.8 81.6 81.6 81.6 81.7 80.6	75 < θ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{43.27} $ 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25 0.06	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3	129.17 136.46 122.37 102.67 82.04 62.22 45.96 28.92 15.36 6.15 1.35	d ² ± ± ± ± ± ± ± ± ± ± = < 10	4.86 3.86 3.60 2.76 2.49 2.16 1.59 1.08 0.70 0.33 0.09	* * * * * * * * * * * * *	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \end{array}$	(\$\theta\$) 84.2 82.0 81.9 81.8 81.6 81.6 81.6 81.7	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}\Omega}{43.27}$ 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25 0.06	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 p _T 0.13-0.16	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ \end{array}$	$ \begin{array}{c} d^{2} \\ \pm \\ \pm \\ $	2 \(\sigma/\) \(\delta\) pds \(\frac{2}{4.86}\) 3.86 \(3.60\) 2.76 \(2.49\) 2.16 \(1.59\) 1.08 \(0.70\) 0.33 \(0.09\) \(\frac{2}{6}\sigma/\) \(\delta\) pds \(\delta\) 47.57	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ \hline \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78		$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{43.27} $ $ \frac{43.27}{3.39} $ $ \frac{3.10}{2.40} $ $ \frac{1.92}{1.70} $ $ \frac{1.17}{0.86} $ $ \frac{0.52}{0.25} $ $ \frac{0.06}{3.04} $	20 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 p _T 0.13-0.16 0.16-0.20	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 $\langle p_{\rm T} \rangle$ 0.143 0.179	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4 (θ) 98.2 97.5	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ 85.71 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	2 \(\sigma/\) \(\delta\) pds 4.86 3.86 3.60 2.76 2.49 2.16 1.59 1.08 0.70 0.33 0.09 05 2 \(\sigma/\) \(\delta\) pds 47.57 3.11	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 114.0	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62	$ \begin{array}{c} < 90 \\ d^{2} \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ \pm \\ d^{2} \\ d^{2} \\ \pm \\ \pm \\ \pm \\ \end{array} $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{43.27} $ $ \frac{43.27}{3.39} $ $ \frac{3.10}{2.40} $ $ \frac{1.92}{1.70} $ $ \frac{1.17}{0.86} $ $ \frac{0.52}{0.25} $ $ \frac{0.06}{0.06} $ $ \frac{25}{3.04} $ $ \frac{2.23}{2.23} $	20 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 p _T 0.13-0.16 0.16-0.20 0.20-0.24	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.457 \\ 0.547 \\ 0.653 \\ 0.794 \\ 1.029 \\ \hline \\ $	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4 (θ) 98.2 97.5 97.3	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ 85.71 \\ 72.59 \\ \end{array}$	d ²	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline \\ 0.5 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline \\ 47.57 \\ 3.11 \\ 2.80 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 114.0 113.7	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62 46.11	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{43.27} $ $ 3.39 $ $ 3.10 $ $ 2.40 $ $ 1.92 $ $ 1.70 $ $ 1.17 $ $ 0.86 $ $ 0.52 $ $ 0.25 $ $ 0.06 $ $ \frac{25}{\sigma/\mathrm{d}p\mathrm{d}S} $ $ 3.04 $ $ 2.23 $ $ 1.97 $	20 ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 0.143 0.179 0.219 0.268	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4 (θ) 98.2 97.5 97.3 97.1	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \hline \\ 136.90 \\ 85.71 \\ 72.59 \\ 54.21 \\ \end{array}$	d4	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76 0.26 10.00 4.42 3.15 2.37	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 114.0 113.7 113.8	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\begin{array}{c} \sigma/\mathrm{d}p\mathrm{d}s\\ \hline 43.27\\ 3.39\\ 3.10\\ 2.40\\ 1.92\\ 1.70\\ 1.17\\ 0.86\\ 0.52\\ 0.25\\ 0.06\\ \hline \sigma/\mathrm{d}p\mathrm{d}s\\ \hline 3.04\\ 2.23\\ 1.97\\ 1.34\\ \end{array}$	\(\frac{\pma}{\pmu}\) \(\frac{\pma}{\pmu}\) \(\pma\) \(\pm\) \	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.146 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.329 \\ 0.389 \\ 0.457 \\ 0.547 \\ 0.653 \\ 0.794 \\ 1.029 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.143 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ \end{array} $	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4 (θ) 98.2 97.5 97.3 97.1 96.6	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ 136.90 \\ 85.71 \\ 72.59 \\ 54.21 \\ 30.72 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ 1.54 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.51 5.83 4.29 3.41 2.66 2.28 1.86 1.33 0.76 0.26	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ \end{array}$	(θ) 84.2 82.0 81.9 81.8 81.6 81.6 81.6 81.7 80.6 (θ) 114.5 113.7 113.8 113.5	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72 16.48	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\sigma/\mathrm{d}p\mathrm{d}S$ 43.27 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25 $\sigma/\mathrm{d}p\mathrm{d}S$ 3.04 2.23 1.97 1.34 0.96	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51 1.06
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 $\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.329 0.387	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4 (θ) 98.2 97.5 97.3 97.1 96.6 97.0	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ 85.71 \\ 72.59 \\ 54.21 \\ 30.72 \\ 20.93 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline 0.05 \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ 1.54 \\ 1.22 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.51 5.83 4.29 3.41 2.66 2.28 1.86 0.26 1.33 0.76 0.26 10.00 4.42 3.15 2.37 1.55 1.30	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.389 \\ \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 113.7 113.8 113.5 113.7	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72 16.48 11.24	$ \begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$\sigma/\mathrm{d}p\mathrm{d}S$ 43.27 3.39 3.10 2.40 1.92 1.70 0.86 0.52 0.06 $\sigma/\mathrm{d}p\mathrm{d}S$ 3.04 2.23 1.97 1.34 0.96 0.79	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51 1.06 0.94
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 $\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.329 0.387 0.459	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.8 66.7 66.3 66.4 98.2 97.5 97.3 97.1 96.6 97.0 96.9	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ 85.71 \\ 72.59 \\ 54.21 \\ 30.72 \\ 20.93 \\ 15.15 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline \\ 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ 1.54 \\ 1.22 \\ 0.92 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 0.26 1.33 0.76 0.26 10.00 4.42 3.15 2.37 1.55 1.30 1.22	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.389 \\ 0.455 \\ \hline \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 114.0 113.7 113.8 113.5 113.7	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72 16.48 11.24 6.88	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}s}{43.27} \\ 3.39 \\ 3.10 \\ 2.40 \\ 1.92 \\ 1.70 \\ 1.17 \\ 0.86 \\ 0.52 \\ 0.25 \\ \hline \sigma/\mathrm{d}p\mathrm{d}s \\ 3.04 \\ 2.23 \\ 1.97 \\ 1.34 \\ 0.96 \\ 0.79 \\ 0.53 $	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51 1.06 0.94 0.74
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 $\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.329 0.387 0.459	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.3 66.4 (θ) 98.2 97.5 97.3 97.1 96.6 97.0 96.9 97.2	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 136.90 \\ 85.71 \\ 72.59 \\ 54.21 \\ 30.72 \\ 20.93 \\ 15.15 \\ 7.34 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline \\ 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ 1.54 \\ 1.22 \\ 0.92 \\ 0.55 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 0.26 1.33 0.76 0.26 10.00 4.42 3.15 2.37 1.55 1.30 1.22 0.79	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.389 \\ 0.455 \\ 0.542 \\ \hline \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 114.0 113.7 113.8 113.7 112.7	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72 16.48 11.24 6.88 2.73	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\sigma/\mathrm{d}p\mathrm{d}S$ 43.27 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25 $\sigma/\mathrm{d}p\mathrm{d}S$ 3.04 2.23 1.97 1.34 0.96 0.79 0.53 0.27	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51 1.06 0.94 0.74 0.39
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 $\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.329 0.387 0.459 0.543 0.653	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.3 66.4 (θ) 98.2 97.5 97.3 97.1 96.6 97.0 96.9 97.2 96.4	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ 85.71 \\ 72.59 \\ 54.21 \\ 30.72 \\ 20.93 \\ 15.15 \\ 7.34 \\ 3.30 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline \\ 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ 1.54 \\ 1.22 \\ 0.92 \\ 0.55 \\ 0.33 \\ \end{array}$	\frac{\pmu}{\pmu} \pmu \pmu \pmu \pmu \pmu \pmu \pmu \pmu	7.51 5.83 4.29 3.41 2.66 2.28 1.86 0.26 0.26 10.00 4.42 3.15 2.37 1.55 1.30 1.22 0.79 0.47	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.389 \\ 0.455 \\ \hline \end{array}$	(θ) 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 (θ) 114.5 114.5 114.7 113.8 113.7 112.7 112.7 111.5	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 3.30 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72 16.48 11.24 6.88 2.73 0.74	$\begin{array}{c} < 90 \\ \text{d}^2 \\ \pm \\ $	$ \frac{\sigma/\mathrm{d}p\mathrm{d}S}{43.27} \\ 3.39 \\ 3.10 \\ 2.40 \\ 1.92 \\ 1.70 \\ 1.17 \\ 0.86 \\ 0.52 \\ 0.06 \\ \hline \frac{\sigma/\mathrm{d}p\mathrm{d}S}{3.04} \\ 2.23 \\ 1.97 \\ 1.34 \\ 0.96 \\ 0.79 \\ 0.53 \\ 0.27 \\ 0.14 $	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51 1.06 0.94 0.74 0.39 0.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.146 0.180 0.219 0.269 0.329 0.389 0.457 0.547 0.653 0.794 1.029 $\langle p_{\rm T} \rangle$ 0.143 0.179 0.219 0.268 0.329 0.387 0.459	66.9 67.3 67.1 67.0 66.7 66.6 66.7 66.3 66.4 (θ) 98.2 97.5 97.3 97.1 96.6 97.0 96.9 97.2	$\begin{array}{c} 129.17 \\ 136.46 \\ 122.37 \\ 102.67 \\ 82.04 \\ 62.22 \\ 45.96 \\ 28.92 \\ 15.36 \\ 6.15 \\ 1.35 \\ \hline \\ 90 < \theta \\ \\ \hline \\ 136.90 \\ 85.71 \\ 72.59 \\ 54.21 \\ 30.72 \\ 20.93 \\ 15.15 \\ 7.34 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 4.86 \\ 3.86 \\ 3.60 \\ 2.76 \\ 2.49 \\ 2.16 \\ 1.59 \\ 1.08 \\ 0.70 \\ 0.33 \\ 0.09 \\ \hline \\ 0.05 \\ \hline 2\sigma/\mathrm{d}p\mathrm{d}S \\ \hline 47.57 \\ 3.11 \\ 2.80 \\ 2.06 \\ 1.54 \\ 1.22 \\ 0.92 \\ 0.55 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	7.51 5.83 4.29 3.41 2.66 2.28 1.86 0.26 1.33 0.76 0.26 10.00 4.42 3.15 2.37 1.55 1.30 1.22 0.79	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.145 \\ 0.180 \\ 0.220 \\ 0.268 \\ 0.329 \\ 0.388 \\ 0.457 \\ 0.547 \\ 0.652 \\ 0.789 \\ 1.035 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.179 \\ 0.218 \\ 0.266 \\ 0.329 \\ 0.389 \\ 0.455 \\ 0.542 \\ \hline \end{array}$	$\langle \theta \rangle$ 84.2 82.0 81.9 81.8 81.6 81.6 81.7 80.6 $\langle \theta \rangle$ 114.5 114.0 113.7 113.8 113.7 112.7	$75 < \theta$ 138.99 100.31 88.88 75.59 48.10 37.60 25.56 18.18 8.35 0.52 $105 < \theta$ 74.78 63.62 46.11 30.72 16.48 11.24 6.88 2.73	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\sigma/\mathrm{d}p\mathrm{d}S$ 43.27 3.39 3.10 2.40 1.92 1.70 1.17 0.86 0.52 0.25 $\sigma/\mathrm{d}p\mathrm{d}S$ 3.04 2.23 1.97 1.34 0.96 0.79 0.53 0.27	2 ± ± ± ± ± ± ± ± ± ± ± ± ±	10.92 5.34 4.05 3.25 2.13 1.90 1.51 1.42 0.86 0.48 0.12 4.54 3.22 1.99 1.51 1.06 0.94 0.74 0.39

Table A.45: Double-differential inclusive cross-section $d^2\sigma/dpd\Omega$ [mb/(GeV/c sr)] of the production of π^- 's in π^- + Cu $\to \pi^-$ + X interactions with -15.0 GeV/c beam momentum; the first error is statistical, the second systematic; $p_{\rm T}$ in GeV/c, polar angle θ in degrees.

			$20 < \ell$	$\theta < 3$	80					$30 < \theta$	< 40)		
p_{T}	$\langle p_{ m T} angle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}\Omega$	Ω		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
0.10-0.13	0.115	24.7	363.75	±	10.38	±	28.41	0.115	34.8	253.15	±	8.52	±	20.01
0.13-0.16	0.145	24.6	403.10	\pm	10.03	\pm	26.17	0.145	34.7	289.21	\pm	8.41	\pm	18.70
0.16-0.20	0.180	24.6	458.73	\pm	8.89	\pm	25.54	0.181	34.8	333.24	\pm	7.59	\pm	18.58
0.20-0.24	0.220	24.6	460.48	\pm	8.82	\pm	22.78	0.220	34.8	313.42	\pm	7.17	\pm	15.33
0.24-0.30	0.269	24.8	437.88	\pm	6.95	\pm	18.66	0.269	34.7	300.24	\pm	5.79	\pm	12.83
0.30-0.36	0.329	24.7	366.60	\pm	6.36	\pm	14.27	0.329	34.7	248.28	\pm	5.16	\pm	9.65
0.36-0.42	0.389	24.7	305.15	\pm	5.80	\pm	12.03	0.389	34.7	202.97	\pm	4.68	\pm	7.95
0.42-0.50	0.458	24.6	221.21	\pm	4.24	\pm	9.94	0.459	34.8	146.78	\pm	3.41	\pm	6.47
0.50-0.60	0.546	24.7	148.59	\pm	3.13	\pm	8.49	0.547	34.7	101.91	\pm	2.54	\pm	5.66
0.60-0.72	0.653	24.8	90.25	\pm	2.21	\pm	6.86	0.656	34.8	59.29	\pm	1.76	\pm	4.37
0.72-0.90								0.796	34.6	32.42	\pm	1.08	\pm	3.28
		<u> </u>	$40 < \theta$) / 5	in				l	$50 < \theta$				
p_{T}	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$	10 0		$\frac{\sigma}{\sigma/\mathrm{d}p\mathrm{d}s}$	2		$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		$\frac{1}{d^2}$	$\frac{\sigma}{\sigma / \mathrm{d}p \mathrm{d}}$	Ω	
0.10-0.13	0.115	45.0	201.30	±	7.59	±	16.28	\P 1 /	(0)		<u> </u>	о / ара	-	
0.13-0.16	0.115	44.9	255.49	±	7.97	±	16.66	0.145	55.0	194.12	\pm	6.95	\pm	12.96
0.15-0.10	0.143	44.8	245.09	±	6.46	±	13.75	0.143	54.9	200.17	\pm	5.84	±	11.17
0.10=0.20	0.180	44.8	231.22	±	6.25	±	11.40	0.180	54.9	196.42	±	5.75	±	9.50
0.20=0.24	0.219	44.7	231.22	±	4.91	±	9.29	0.220	54.8	166.88	±	4.33	±	7.03
0.30-0.36	0.270	44.6	177.02	±	4.39	±	6.90	0.209	54.9	132.74	±	3.82	±	5.19
0.36-0.42	0.389	44.7	144.72	±	3.95	±	5.77	0.328	54.6	105.02	±	3.41	±	4.29
0.30-0.42	0.389	44.5	106.38	±	2.88	±	4.86	0.350	54.7	75.93	±	2.44	±	3.59
0.50-0.60	0.546	44.8	71.12	±	2.12	±	4.15	0.546	54.7	53.26	\pm	1.86	±	3.22
0.60-0.72	0.654	44.8	41.61	±	1.45	±	3.26	0.653	54.7	30.16	±	1.25	±	2.42
0.72-0.90	0.034	44.8	18.84	±	0.80	±	2.02	0.033	54.6	11.63	±	0.61	±	1.31
0.72-0.90	0.793	44.6	10.04		0.80		2.02	1.037	54.5	2.23	±	0.01	±	0.41
0.90 1.23			CO 4 ()	, -			1.037	J -1. J					0.41
	/	///	$60 < \theta$			<u> </u>					< 90)		0.41
$p_{ m T}$	$\langle p_{\mathrm{T}} \rangle$	$\langle \theta \rangle$		d^2	$^2\sigma/\mathrm{d}p\mathrm{d}\Omega$		10.05	$\langle p_{ m T} angle$	$ \langle \theta \rangle$	$75 < \theta$	< 90 d^{2}	$\sigma/\mathrm{d}p\mathrm{d}$	Ω	
p _T 0.13–0.16	0.145	67.5	166.04	$\frac{\mathrm{d}^2}{\pm}$	$\frac{2\sigma/\mathrm{d}p\mathrm{d}s}{5.32}$	±	10.85	$\langle p_{\mathrm{T}} \rangle$ 0.147	(θ) 81.8	$75 < \theta$	$\frac{< 90}{d^2}$	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07}$	Ω ±	14.04
p _T 0.13-0.16 0.16-0.20	0.145 0.180	67.5 67.3	166.04 153.81	# #	$\frac{2\sigma/dpd9}{5.32}$ 4.14	± ±	8.18	$\langle p_{\rm T} \rangle$ 0.147 0.179	(θ) 81.8 81.9	$75 < \theta$ 150.06 121.33	< 90 d ² ± ±	$\frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07}$ 3.74	Ω ± ±	14.04 6.26
<i>p</i> _T 0.13–0.16 0.16–0.20 0.20–0.24	0.145 0.180 0.219	67.5 67.3 67.1	166.04 153.81 141.39	# # #	$\frac{3\sigma/dpd9}{5.32}$ 4.14 3.94	± ± ±	8.18 6.52	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220	(θ) 81.8 81.9 82.3	$75 < \theta$ 150.06 121.33 108.18	< 90 d ² ± ± ±	$\frac{\sigma/dp}{dp}$ 8.07 3.74 3.51	Ω ± ± ±	14.04 6.26 4.86
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30	0.145 0.180 0.219 0.269	67.5 67.3 67.1 66.8	166.04 153.81 141.39 120.64	# # # #	$\frac{3\sigma/dpds}{5.32}$ 4.14 3.94 3.05	± ± ±	8.18 6.52 5.15	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269	(θ) 81.8 81.9 82.3 81.9	75 < θ 150.06 121.33 108.18 86.25	< 90 d ² ± ± ± ±	$\frac{\sigma/dpd}{8.07}$ 8.07 3.74 3.51 2.61	Ω ± ± ±	14.04 6.26 4.86 3.78
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	0.145 0.180 0.219 0.269 0.330	67.5 67.3 67.1 66.8 66.9	166.04 153.81 141.39 120.64 93.32	# # # # # #	$\frac{2\sigma/dpd9}{5.32}$ 4.14 3.94 3.05 2.68	± ± ± ±	8.18 6.52 5.15 3.78	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9	75 < θ 150.06 121.33 108.18 86.25 61.23	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma}{dpd}$ 8.07 3.74 3.51 2.61 2.22	Ω ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89
p _T 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	0.145 0.180 0.219 0.269 0.330 0.389	67.5 67.3 67.1 66.8 66.9 66.8	166.04 153.81 141.39 120.64 93.32 73.33	d ² ± ± ± ± ± ±	$\frac{3 \sigma}{dp} d9$ 5.32 4.14 3.94 3.05 2.68 2.35	± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389	(θ) 81.8 81.9 82.3 81.9 81.9 81.8	75 < θ 150.06 121.33 108.18 86.25 61.23 45.19	< 90 d ² ± ± ± ± ± ±	$\frac{\sigma/dpd}{8.07}$ 3.74 3.51 2.61 2.22 1.87	Ω ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50	0.145 0.180 0.219 0.269 0.330 0.389 0.457	67.5 67.3 67.1 66.8 66.9 66.8 67.0	166.04 153.81 141.39 120.64 93.32 73.33 50.43	### ### ### ### ### ### ### ### #### ####	$\frac{3.94}{3.94}$ 2.35 1.65	± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456	(θ) 81.8 81.9 82.3 81.9 81.9 81.8 81.9	75 < θ 150.06 121.33 108.18 86.25 61.23 45.19 30.88	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 8.07 3.74 3.51 2.61 2.22 1.87 1.32	Ω ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8	166.04 153.81 141.39 120.64 93.32 73.33 50.43 31.25	d ² ± ± ± ± ± ± ± ±	$\frac{3\sigma}{dpds}$ 5.32 4.14 3.94 3.05 2.68 2.35 1.65	± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456 0.545	(θ) 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7	75 < θ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52	<pre></pre>	$\frac{\sigma/\text{d}p\text{d}}{8.07}$ $\frac{3.74}{3.51}$ $\frac{2.61}{2.22}$ $\frac{1.87}{1.32}$ $\frac{0.92}{0.92}$	Ω ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6	166.04 153.81 141.39 120.64 93.32 73.33 50.43 31.25 16.18	d ² ± ± ± ± ± ± ± ± ±	$\frac{3\sigma}{dpds}$ 5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73	± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456 0.545 0.653	(θ) 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7 81.6	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\frac{\sigma/\text{d}p\text{d}}{8.07}$ $\frac{3.74}{3.51}$ $\frac{2.61}{2.22}$ $\frac{1.87}{1.32}$ $\frac{0.92}{0.51}$	Ω ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5	166.04 153.81 141.39 120.64 93.32 73.33 50.43 31.25 16.18 6.30	d ² ± ± ± ± ± ± ± ± ± ±	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36	± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456 0.545 0.653 0.796	⟨θ⟩ 81.8 81.9 82.3 81.9 81.8 81.9 81.8 81.9 81.7 81.6 81.1	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 8.07 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25	Ω ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6	166.04 153.81 141.39 120.64 93.32 73.33 50.43 31.25 16.18 6.30 1.15	d ² ± ± ± ± ± ± ± ± ± ±	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10	± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456 0.545 0.653	(θ) 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7 81.6	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.07 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06	Ω ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5	166.04 153.81 141.39 120.64 93.32 73.33 50.43 31.25 16.18 6.30	d ² ± ± ± ± ± ± ± ± ± = ±	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10	± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78	$\langle p_{\rm T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456 0.545 0.653 0.796 1.025	(\$\theta\$) 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7 81.6 81.1 81.0	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69	< 90 d ² , ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	σ/dpd 8.07 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06	Ω ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \end{array}$		5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10	± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22	$\langle p_{ m T} \rangle$ 0.147 0.179 0.220 0.269 0.328 0.389 0.456 0.545 0.653 0.796 1.025	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.8 81.9 81.7 81.6 81.1 81.0	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$		σ/dpd 8.07 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline 90 < \theta \\ \hline \end{array}$	$ \begin{array}{r} $	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10 05 6.25	± ± ± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \\ \hline \langle p_{\rm T} \rangle \\ 0.145 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97		σ/dpd 8.07 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06 σ/dpd 3.31	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026 $\langle p_{\rm T} \rangle$ 0.147 0.179	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 (θ) 97.5 97.4	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline 90 < \theta \\ \\ \hline 127.02 \\ 103.21 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10 05 6.25 3.41	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.8 \\ 81.9 \\ 82.3 \\ 81.9 \\ 81.9 \\ 81.8 \\ 81.9 \\ 81.7 \\ 81.6 \\ 81.1 \\ 81.0 \\ \hline \\ \langle \theta \rangle \\ \hline \\ 114.4 \\ 114.2 \\ \end{array} $	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} $ 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.31} $ 2.54	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.457 \\ 0.545 \\ 0.653 \\ 0.799 \\ 1.026 \\ \hline \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ \end{array} $	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 (ψ) 97.5 97.4 97.3	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline 90 < \theta \\ \hline 127.02 \\ 103.21 \\ 82.99 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3.9 \text{dpds} \\ \hline 5.32 \\ 4.14 \\ 3.94 \\ 3.05 \\ 2.68 \\ 2.35 \\ 1.64 \\ 0.73 \\ 0.36 \\ 0.10 \\ \hline \\ 0.5 \\ \hline \\ 3.41 \\ 3.10 \\ \end{array}$	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} $ 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.31} $ 2.54 2.10	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09
p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30 0.30–0.36 0.36–0.42 0.42–0.50 0.50–0.60 0.60–0.72 0.72–0.90 0.90–1.25 p _T 0.13–0.16 0.16–0.20 0.20–0.24 0.24–0.30	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.457 \\ 0.545 \\ 0.653 \\ 0.799 \\ 1.026 \\ \hline \\ \hline \\ \sqrt{p_{\mathrm{T}}}\rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ \end{array} $	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline 90 < \theta \\ \hline 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	$\begin{array}{c} 3 - dpds \\ \hline 5.32 \\ 4.14 \\ 3.94 \\ 3.05 \\ 2.68 \\ 2.35 \\ 1.64 \\ 0.73 \\ 0.36 \\ 0.10 \\ \hline \\ 0.5 \\ \hline \\ 3.41 \\ 3.10 \\ 2.21 \\ \end{array}$	\frac{\pmu}{\pmu} \frac{\pmu}{	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.8 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6 113.7	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} $ 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.31} $ 2.54 2.10 1.44	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.457 \\ 0.545 \\ 0.653 \\ 0.799 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ \end{array} $	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7 96.9	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \hline \\ 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ 41.20 \\ \hline \end{array}$	$\begin{array}{c} d^{2} \\ \pm \\ $	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10 0.5 6.25 3.41 3.10 2.21	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79 2.13	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6 113.7 113.5	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76 18.81	< 90 d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} $ 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06 25 $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.31} $ 2.54 2.10 1.44 1.04	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.457 \\ 0.545 \\ 0.653 \\ 0.799 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.389 \\ \end{array} $	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7 96.9 97.0	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \\ 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ 41.20 \\ 29.06 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10 05 6.25 3.41 3.10 2.21 1.79	± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79 2.13 1.95	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.388 \\ \end{array}$	$ \begin{array}{c c} \langle \theta \rangle \\ 81.8 \\ 81.9 \\ 82.3 \\ 81.9 \\ 81.8 \\ 81.9 \\ 81.7 \\ 81.6 \\ 81.1 \\ 81.0 \\ \hline \\ \langle \theta \rangle \\ 114.4 \\ 114.2 \\ 113.6 \\ 113.7 \\ 113.5 \\ 113.2 \\ \end{array} $	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76 18.81 11.59		$\sigma/\mathrm{d}p\mathrm{d}$ 8.07 3.74 3.51 2.61 2.22 1.87 1.32 0.92 0.51 0.25 0.06 25 $\sigma/\mathrm{d}p\mathrm{d}$ 3.31 2.54 2.10 1.44 1.04 0.78	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09 5.51 3.41 2.26 1.85 1.35
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50	$ \begin{array}{c} 0.145 \\ 0.180 \\ 0.219 \\ 0.269 \\ 0.330 \\ 0.389 \\ 0.457 \\ 0.545 \\ 0.653 \\ 0.799 \\ 1.026 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.219 \\ 0.268 \\ 0.329 \\ 0.389 \\ 0.458 \\ \end{array} $	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7 96.9 97.0 96.3	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \hline \\ 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ 41.20 \\ 29.06 \\ 16.59 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} 3 / dpd9 \\ \hline 5.32 \\ 4.14 \\ 3.94 \\ 3.05 \\ 2.68 \\ 2.35 \\ 1.65 \\ 1.14 \\ 0.73 \\ 0.36 \\ \hline 0.10 \\ \hline 0.5 \\ \hline 3.41 \\ 3.10 \\ 2.21 \\ 1.79 \\ 1.49 \\ 0.96 \\ \end{array}$	######################################	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79 2.13 1.95 1.45	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.388 \\ 0.460 \\ \hline \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6 113.7 113.5 113.2	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76 18.81 11.59 7.42		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} \\ 3.74 \\ 3.51 \\ 2.61 \\ 2.22 \\ 1.87 \\ 1.32 \\ 0.92 \\ 0.51 \\ 0.06 \\ \hline \frac{\sigma/\mathrm{d}p\mathrm{d}}{2.54} \\ 2.10 \\ 1.44 \\ 1.04 \\ 0.78 \\ 0.55 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09 5.51 3.41 2.26 1.85 1.35 1.09 0.90
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.268 0.329 0.389 0.458 0.542	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7 96.9 97.0 96.3 97.0	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \hline \\ 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ 41.20 \\ 29.06 \\ 16.59 \\ 9.21 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10 0.5 3.41 3.10 2.21 1.79 1.49 0.96 0.61	\frac{\pmu}{\pmu} \frac{\pmu}{	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79 2.13 1.95 1.45 1.08	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.388 \\ 0.460 \\ 0.543 \\ \hline \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6 113.7 113.5 113.2 112.1	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76 18.81 11.59 7.42 2.82		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} \\ 3.74 \\ 3.51 \\ 2.61 \\ 2.22 \\ 1.87 \\ 1.32 \\ 0.92 \\ 0.51 \\ 0.25 \\ 0.06 $ $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.31} \\ 2.54 \\ 2.10 \\ 1.44 \\ 1.04 \\ 0.78 \\ 0.55 \\ 0.30 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09 5.51 3.41 2.26 1.85 1.35 1.09 0.90 0.44
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.268 0.329 0.389 0.458 0.542 0.651	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7 96.9 97.0 96.3 97.0 96.6	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \hline \\ 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ 41.20 \\ 29.06 \\ 16.59 \\ 9.21 \\ 4.66 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	$\begin{array}{c} \sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 5.32 \\ 4.14 \\ 3.94 \\ 3.05 \\ 2.68 \\ 2.35 \\ 1.65 \\ 1.14 \\ 0.73 \\ 0.36 \\ \hline 0.30 \\ \hline 0.5 \\ \hline \sigma/\mathrm{d}p\mathrm{d}9 \\ \hline 6.25 \\ 3.41 \\ 3.10 \\ 2.21 \\ 1.79 \\ 1.49 \\ 0.96 \\ 0.61 \\ 0.41 \\ \end{array}$	# # # # # # # # # # # # # # # # # # #	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79 2.13 1.95 1.45 1.08 0.72	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.388 \\ 0.460 \\ 0.543 \\ 0.651 \\ \hline \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6 113.7 113.5 113.2 112.1 111.7	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76 18.81 11.59 7.42 2.82 0.69		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} $ $ 3.74 $ $ 3.51 $ $ 2.61 $ $ 2.22 $ $ 1.87 $ $ 1.32 $ $ 0.92 $ $ 0.51 $ $ 0.25 $ $ 0.06 $ $ 0.55 $ $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{2.54} $ $ 2.10 $ $ 1.44 $ $ 1.04 $ $ 0.78 $ $ 0.55 $ $ 0.30 $ $ 0.13 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09 5.51 3.41 2.26 1.85 1.35 1.09 0.90 0.44 0.14
PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60 0.60-0.72 0.72-0.90 0.90-1.25 PT 0.13-0.16 0.16-0.20 0.20-0.24 0.24-0.30 0.30-0.36 0.36-0.42 0.42-0.50 0.50-0.60	0.145 0.180 0.219 0.269 0.330 0.389 0.457 0.545 0.653 0.799 1.026 $\langle p_{\rm T} \rangle$ 0.147 0.179 0.219 0.268 0.329 0.389 0.458 0.542	67.5 67.3 67.1 66.8 66.9 66.8 67.0 66.8 66.6 66.5 66.1 97.5 97.4 97.3 96.7 96.9 97.0 96.3 97.0	$\begin{array}{c} 166.04 \\ 153.81 \\ 141.39 \\ 120.64 \\ 93.32 \\ 73.33 \\ 50.43 \\ 31.25 \\ 16.18 \\ 6.30 \\ 1.15 \\ \hline \\ 90 < \theta \\ \hline \\ 127.02 \\ 103.21 \\ 82.99 \\ 61.30 \\ 41.20 \\ 29.06 \\ 16.59 \\ 9.21 \\ \end{array}$	d ² ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	5.32 4.14 3.94 3.05 2.68 2.35 1.65 1.14 0.73 0.36 0.10 0.5 3.41 3.10 2.21 1.79 1.49 0.96 0.61	\frac{\pmu}{\pmu} \frac{\pmu}{	8.18 6.52 5.15 3.78 3.16 2.62 2.11 1.47 0.78 0.22 11.18 5.27 3.58 2.79 2.13 1.95 1.45 1.08	$\begin{array}{c} \langle p_{\rm T} \rangle \\ 0.147 \\ 0.179 \\ 0.220 \\ 0.269 \\ 0.328 \\ 0.389 \\ 0.456 \\ 0.545 \\ 0.653 \\ 0.796 \\ 1.025 \\ \hline \\ \langle p_{\rm T} \rangle \\ 0.145 \\ 0.178 \\ 0.219 \\ 0.266 \\ 0.329 \\ 0.388 \\ 0.460 \\ 0.543 \\ \hline \end{array}$	$\langle \theta \rangle$ 81.8 81.9 82.3 81.9 81.9 81.7 81.6 81.1 81.0 $\langle \theta \rangle$ 114.4 114.2 113.6 113.7 113.5 113.2 112.1	$75 < \theta$ 150.06 121.33 108.18 86.25 61.23 45.19 30.88 19.52 8.06 2.69 0.41 $105 < \theta$ 88.97 75.85 51.27 34.76 18.81 11.59 7.42 2.82		$ \frac{\sigma/\mathrm{d}p\mathrm{d}}{8.07} \\ 3.74 \\ 3.51 \\ 2.61 \\ 2.22 \\ 1.87 \\ 1.32 \\ 0.92 \\ 0.51 \\ 0.25 \\ 0.06 $ $ \frac{\sigma/\mathrm{d}p\mathrm{d}}{3.31} \\ 2.54 \\ 2.10 \\ 1.44 \\ 1.04 \\ 0.78 \\ 0.55 \\ 0.30 $	Ω ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ± ±	14.04 6.26 4.86 3.78 2.89 2.33 1.96 1.64 0.91 0.40 0.09 5.51 3.41 2.26 1.85 1.35 1.09 0.90 0.44